

# Product Range Overview 2010



**Renewable Energies**

Heat Pumps

Solar Thermal Systems

**Domestic Heating Products**

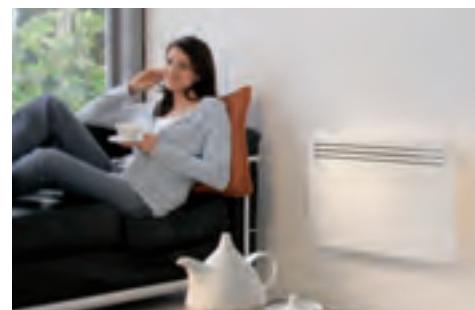
**2010**



Heatpumps



Solar Thermal Systems



Domestic Heating Systems

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### Heating and domestic hot water preparation package

Max. flow temperature for heating 58 °C

Gasing colour white aluminium

#### Heat pump and HWK 332 Econ hydro tower

The Hydro Tower with integrated WPM EconPlus regulation enables the fast and simple connection of an air-to-water heat pump installed outdoors to a heating system with an unmixed heating circuit. The following components are mounted and wired in a space-saving way inside a single casing.

- Switchable pipe heater (2/4/6 kW)
- Safety valve incl. connection for an expansion vessel
- Buffer tank (100 l) with installation option for an additional immersion heater (up to CTHK 634).
- Hot water cylinder (300 l) with installation option for an additional heating element (flange heater).
- Electronically regulated circulating pump (energy-efficiency class A) pre-wired with coupling relay for an unmixed heating circuit (consumer circuit).
- Unregulated circulating pump integrated for the generator circuit and hot water circulating pump.
- The hydraulic isolation of the generator circuit and the consumer circuit is done via two differential pressureless manifolds (bypass pipes), which are each fitted with a check valve.

The unregulated circulating pump in the generator circuit is only operated when the compressor is running in order to reduce the run-times. The uniform flow through the buffer tank connected in series extends the runtimes of the compressor and ensures the required heating water flow in all operating situations.

**Electrical connection cable EVL... U between heat pump and heat pump manager must be ordered separately.**

Lower operating limit heat source (heating operation) -25 °CUpper operating limit heat source (heating operation) 35°C;  
Refrigerant R404AConnection heating 1½; Connection voltage 3/N/PE ~400 V, 50 Hz



HPL.TUW

| Order reference | Ait.-Nr. | Heatoutput kW | Features                                      | Weight kg |
|-----------------|----------|---------------|---|-----------|
| HPL9TUW         | 362630   | 7.5kW         | Package LA 9TU with HWK 332 Econ hydro tower  | 418       |
| HPL12TUW        | 362640   | 9.4kW         | Package LA 12TU with HWK 332 Econ hydro tower | 490       |
| HPL17TUW        | 362650   | 14.6kW        | Package LA 17TU with HWK 332 Econ hydro tower | 446       |

Heat output according to EN 14511 at A2/W35 (A2 = air intake temperature +2 °C, W35 = heating water outlet temperature +35 °C)

The technical data for the heat pump can be found on the following pages. The sales package consists of a high-efficiency heat pump without WPM EconPlus and the HWK 332 Econ hydro tower with integrated heat pump manager.

The HWK 332 hydro tower (without integrated HPM) can be ordered for use in combination with air-to-water heat pumps from the LA... AS/PS series. If the heating water connection lines are more than 10 m long, the free compression values stated in the device information must be observed (minimum pipe diameter for volume flows of more than 1.5 m³/h: DN 32)!

## High-efficiency air-to-water heat pump

### High-efficiency air-to-water heat pump

Max. flow temperature for heating 58 °C  
Gassing colour white aluminium



LA9TU



LA12TU

Heat pump for heating purposes for outdoor installation with wall-mounted WPM EconPlus heat pump manager. Sound-optimised through the use of slow-running „owl's wing“ fans with a low, natural-sounding noise, an encapsulated compressor housing with free-swinging compressor baseplate for solid-borne sound insulation. High COPs through high-performance evaporator and compliance with the requirements of EN 14511 for larger volume flows on the heat consumption side. Sensor monitoring of the refrigerating circuit for energy-efficient defrosting; integrated thermal energy metering (display of the thermal energy volume for heating and domestic hot water preparation on the WPM EconPlus heat pump manager). Access for servicing on the outlet side; observe the minimum clearances for installation close to walls. Universal design with the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Integrated soft starter, flow and return-flow sensors; external sensor (standard NTC-2) included in the scope of supply.

**Electrical connection cable EVL . . U between heat pump and heat pump manager must be ordered separately.**

Lower operating limit heat source (heating operation) -25 °C Upper operating limit heat source (heating operation) 35 °C Refrigerant R404A Connection heating 1 1/2; Connection voltage 3/N/PE ~400 V, 50 Hz

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP A2/W35 | Connection voltage   | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|----------------------|---------------------------|-----------|
| LA9TU           | 358520   | 7.6/ 3.8 (3.7)                             | 3/N/PE ~400 V, 50 Hz | 910x 1460 x 750           | 208       |
| LA12TU          | 358530   | 9.5/ 3.8 (3.7)                             |                      | 1250x 1810 x 750          | 280       |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2 °C, W35 = heating water outlet temperature +35 °C)

The air outlet must be positioned at a right angle to the main wind direction if unsheltered outdoor installation is carried out. If this is not possible, a weather protection hood must be installed!

### High-efficiency air-to-water heat pump

Max. flow temperature for heating 58 °C  
Gassing colour white aluminium

#### with two performance levels



LA17TU



LA40TU

Heat pump for heating purposes for outdoor installation, with wall-mounted WPM EconPlus heat pump manager and two compressors for output reduction when operating at partial load. Sound-optimised through the use of slow-running „owl's wing“ fans with a low, natural-sounding noise, an encapsulated compressor housing with free-swinging compressor baseplate for solid-borne sound insulation. High COPs through high-performance evaporator and compliance with the requirements of EN 14511 for larger volume flows on the heat consumption side. Sensor monitoring of the refrigerating circuit for energy-efficient defrosting; integrated thermal energy metering (display of the thermal energy volume for heating and domestic hot water preparation on the WPM EconPlus heat pump manager). Access for servicing on the outlet side; observe the minimum clearances for installation close to walls. Universal design with two compressors for modulating operation, optional DHW preparation and the possibility of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Integrated soft starter, flow and return-flow sensors; external sensor (standard NTC-2) included in the scope of supply.

**Electrical connection cable EVL . . U between heat pump and heat pump manager must be ordered separately.**

Lower operating limit heat source (heating operation) -25 °C Upper operating limit heat source (heating operation) 35°C; Refrigerant R404A Connection voltage 3/N/PE~400 V, 50 Hz

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP A2/W35 | Heat output with 2 compressors / COP A2/W35 | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|---|---------------------------|-----------|
| LA17TU          | 358540   | 8.4/ 3.9 (3.8)                             | 14.7/ 3.8 (3.7)                             | 1600x 1940 x 955          | 436       |
| LA25TU          | 358550   | 11.4/ 3.9 (3.8)                            | 19.7/ 3.8 (3.7)                             |                           | 510       |
| LA40TU          | 358560   | 17.1/ 4.0 (3.9)                            | 30.4/ 3.9 (3.8)                             | 1735x 2100 x 980          | 585       |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2 °C, W35 = heating water outlet temperature +35 °C)

The air outlet must be positioned at a right angle to the main wind direction if unsheltered outdoor installation is carried out. If this is not possible, a weather protection hood must be installed!

## High-efficiency air-to-water heat pump with two performance levels

Max. flow temperature for heating 60 °C  
Gasing colour white aluminium



LA60TU

Heat pump for heating purposes for outdoor installation, with wall-mounted WPM EconPlus heat pump manager and two compressors for output reduction when operating at partial load. Sound-optimised through the use of two slow-running EC ventilators, an encapsulated compressor housing and a free-swinging compressor baseplate for solid-borne sound insulation. High COPs through high-performance evaporator, electronic expansion valve and compliance with the requirements of EN 14511 for larger volume flows on the heat consumption side. Sensor monitoring of the refrigerating circuit for energy-efficient defrosting; integrated thermal energy metering (display of the thermal energy volume for heating and domestic hot water preparation on the WPM EconPlus heat pump manager). Access for servicing on the outlet side; observe the minimum clearances for installation close to walls. Can be easily transported with a lift truck (accessible from underneath) or lifting lugs. Universal design with two compressors for modulating operation, optional DHW preparation and the possibility of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Integrated soft starter, flow and return-flow sensors; external sensor (standard NTC-2) included in the scope of supply.

**Electrical connection cable EVL ... UE between heat pump and heat pump manager must be ordered separately.**

Lower operating limit heat source (heating operation) -20 °C Upper operating limit heat source (heating operation) 35 °C;

Refrigerant R417A Connection heating 2; Connection voltage 3/N/PE ~400 V, 50 Hz

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP A2/W35 | Heat output with 2 compressors / COP A2/W35 | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|---|---------------------------|-----------|
| LA60TU          | 362330   | 26.4/ 3.8 (3.7)                            | 50.0/ 3.7 (3.6)                             | 1900x 2300 x 1000         | 915       |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2 °C, W35 = heating water outlet temperature +35 °C). From an external temperature of 0 °C, a maximum flow temperature of 65 °C is available, which can also be used for DHW preparation.

**Note:**

Dimplex heat pumps for heating purposes are designed for use in a domestic environment, and conform to the low voltage directive. They are thus also intended for use by non-professionals for heating shops, offices, hotels and other similar working environments, in agricultural establishments and other residential buildings. The LA 60TU and SI 130TE heat pumps can be supplied, according to the machinery directive, with an external switch box upon request (order reference: LA 60TU-MD, SI 130TE-MD).

## Electric connecting line heat pump – heat pump manager

### Essential accessory for heat pumps with electronic expansion valves

Separate control lines (24V and 230V) between WPM EconPlus / EconR heat pump manager and the high-efficiency air-to-water heat pump with electronic expansion valve for outdoor installation. Wired ready for use with coded plug connections (non-confusable thanks to identical connections at both ends of the cable) for installation in a protective tube (minimum tube Ø 70 mm).

| Order reference | Art.-Nr. | for device type | length m | Weight kg |
|-----------------|----------|-----------------|----------|-----------|
| EVL 10UE        | 363520   | LA60TU          | 10       | 5.5       |
| EVL 20UE        | 363530   |                 | 20       | 10.0      |
| EVL 30UE        | 363540   |                 | 30       | 15.5      |
| EVL 40UE        | 363550   |                 | 40       | 21.0      |

Essential accessory for high-efficiency air-to-water heat pumps. Should be installed separately from the mains cable.  
Extension of the control line by the owner is not allowed!

## Weather protection hood for high-efficiency air-to-water heat pumps



WSH40

Design weather protection cover for retrofitting to high-efficiency air-to-water heat pumps; covers the fan on the air outlet side; deflects the air outflow downwards and to the side; recommended for installation locations with high wind exposure, for example.

| Order reference | Art.-Nr. | for device type     | Width x Height x Depth mm | Weight kg |
|-----------------|----------|---------------------|---------------------------|-----------|
| WSH9            | 362110   | LA1TU               | 856x 724 x 370            | 13        |
| WSH12           | 362120   | LA2TU               | 1195x 1063 x 460          | 17        |
| WSH25           | 358970   | LA7TU<br>LA 25TU    | 1600x 1225 x 568          | 28        |
| WSH40           | 358240   | LA40TU<br>LA 35TUR+ | 1734x 1385 x 628          | 32        |

## Pipe assembly for high-efficiency air-to-water heat pumps

### for connection from the side



RBS..U

The pipe assembly, which can be screwed directly onto the heat pump, consists of two pipes which are specially curved and matched to the high-efficiency air-to-water heat pumps; these pipes have connecting flanges for the connection to the heating water system. When the heat pump is installed close to the outer wall, these pipe assemblies – which are fed out from the side of the heat pump (base frame on the air outlet side, on the right and below the fan) – can be used to create an above-ground infeed into the building (thermal insulation required for frost protection). In this case, the underground pipework routing for feeding the pipes into the cellar is not required.

| Order reference | Ait.-Nr. | for device type                   | Connection heating " | Weight kg |
|-----------------|----------|-----------------------------------|----------------------|-----------|
| RBS9U           | 358820   | LA9TU                             |                      | 2.3       |
| RBS12U          | 358830   | LA12TU                            |                      | 2.5       |
| RBS17U          | 358840   | LA17TU                            |                      | 2.7       |
| RBS25U          | 358850   | LA25TU                            |                      | 3.0       |
| RBS40U          | 358860   | LA40TU<br>LA 35TUR+               | 1½                   |           |
| RBS40ZWT        | 358330   | LA5TUR+ additional heat exchanger |                      |           |
| RBS60U          | 362470   | LA60TU                            | 2                    | 5.2       |

The height of the heat pump foundation required depends on the insulation thickness for the flow and return, the clearance to the wall, and the slope of the pipework.

## Reversible high-efficiency air-to-water heat pump

### Optimised for heating and cooling

Max. flow temperature for heating 56 °C

Flow temperature cooling min. 9 °C

Gasing colour white aluminium



LA35TUR+

Heat pump for heating and cooling purposes for outdoor installation with wall-mounted heat pump manager and two compressors for output reduction when operating at partial load. Sound-optimised by electronically-controlled fans and an encapsulated compressor housing with free-swinging compressor baseplate for solid-borne sound insulation; High COPs through high-performance evaporator and compliance with the requirements of EN 14511 for larger volume flows on the heat consumption side. Optimised heating and cooling operation via an external four-way reversing valve which is activated by the controller (special accessory). Sensor monitoring of the refrigerating circuit for energy-efficient defrosting; integrated thermal energy metering (display of the thermal energy volume for heating and domestic hot water preparation on the WPM EconR heat pump manager). Reversible refrigerating circuit with additional heat exchanger for higher DHW temperatures in heating operation and waste heat recovery in cooling operation. Access for servicing on the outlet side; observe the minimum clearances for installation close to walls. Can be easily transported with a lift truck (accessible from underneath) or lifting lugs. Universal design with the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- combined distribution systems for heating and cooling
- unmixed and mixed heating and cooling circuits

Silent cooling via panel heating/cooling systems requires the use of the room climate control station (special accessory) to regulate the flow temperature on the basis of the air temperature and humidity of a reference room. Integrated soft starter, flow and return-flow sensors; external sensor (standard NTC-2) included in the scope of supply.

**Electrical connection cable EVL .. U between heat pump and heat pump manager must be ordered separately.**

Lower operating limit heat source (heating operation) -25 °C; Upper operating limit heat source (heating operation) 40 °C; Lower operating limit heat source (cooling operation) 10 °C; Upper operating limit heat source (cooling operation) 45 °C; Refrigerant R417A; Connection heating 1½; Connection voltage 3/N/PE ~400 V, 50 Hz

| Order reference | Ait.-Nr. | Heatoutput with 1 compressor / COP A2/W35 | Heatoutput with 2 compressors / COP A2/W35 | Cooling capacity 1 compressor / EER A27/W7 | Cooling capacity with 2 compressors / EER A27/W18 | Width x Height x Depth mm | Weight kg |
|-----------------|----------|---|--|--|---|---------------------------|-----------|
| LA35TUR+        | 358570   | 14.0/ 4.3 (4)                             | 24.2/ 4.0 (3.7)                            | 15.0° 4.2                                  | 32.0° 3.9   | 1735x 2100 x 980          | 595       |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2 °C, W35 = heating water outlet temperature +35 °C).

Cooling capacity and coefficient of performance according to EN 14511.

From an external temperature of 0 °C, a maximum flow temperature of 60 °C is available, which can also be used for DHW preparation.

The performance values stated can only be achieved in combination with the external four-way valve available as an accessory!

## Four-way reversing valve

### Special hydraulic accessories for cooling



VWU ..



EMSVWU

The four-way reversing valve (1¼" internal thread and/or 1½" internal thread) for integration into the heating flow allows optimised heating and cooling operation of the LA 35TUR+ reversible air-to-water heat pump. Switching takes place via an electromotive actuator (essential accessory) which is activated by the WPM EconR heat pump manager. The actuator is fitted to the reversing valve using a mounting set which is included in the scope of supply of the EMS VWU.

| Order reference | Art.-Nr. | for device type | Maximum volume flow m³/h | Features  | Weight kg |  |
|-----------------|----------|-----------------|--------------------------|---|-----------|--|
| VWU 32          | 358600   | LA35TUR+        | 3.5                      | Four-way reversing valve for switching from heating to cooling operation in flow and/or return flow. Essential accessories: EMS VWU   | 2.6       |  |
| VWU 40          | 358610   |                 | 5.0                      |   | 2.9       |  |
| EMSVWU          | 358580   | WVU 32VWU 40    |                          | Actuator for 4-way reversing valves VWU, 3-point control signal, 1/N/PE ~230V, 50/60 Hz for short switching times (set time 30 s at 50 Hz), delivery includes mounting set. | 1.5       |  |

## Electric connecting line heat pump – heat pump manager

### Essential accessories



EVL ..U

Separate control lines (24 V and 230 V) between WPM EconPlus / EconR heat pump manager and the high-efficiency air-to-water heat pump for outdoor installation. Wired ready for use with coded plug connections (non-confusable) at both cable ends for installation in a protective tube (tube Ø min. 70 mm).

| Order reference | Art.-Nr. | for device type           | length m | Weight kg |  |
|-----------------|----------|---------------------------|----------|-----------|--|
| EVL 10U         | 355900   | LA 9TU – LA 40TULA 35TUR+ | 10       | 5         |  |
| EVL 20U         | 355910   |                           | 20       | 9         |  |
| EVL 30U         | 355920   |                           | 30       | 14        |  |
| EVL 40U         | 355930   |                           | 40       | 16        |  |

Essential accessory for high-efficiency air-to-water heat pumps. Should be installed separately from the mains cable.

Extension of the control line by the owner is not allowed!

### Heating package

#### Heat pump and HPK 200S hydraulic tower



HPL...

The hydraulic tower (W = 680 mm; H = 1660; D = 775) with integrated WPM 2006 plus controller enables the fast and simple connection of an air-to-water heat pump (installed outdoors) to a heating system with an unmixed heating circuit. The following components are mounted and wired in a space-saving way in a white sheet steel casing with red-brown design screen:

- Switchable pipe heater (2 / 4 / 6 kW)
- 200 l buffer tank with installation option for an additional immersion heater (up to CTHK 634)
- Electronically regulated circulating pump for unmixed heating circuits (consumer circuit)
- Expansion vessel (24 l) with safety module
- The hydraulic isolation of the generator circuit and the consumer circuit is done via two differential pressureless manifolds (bypass pipes), which are each fitted with a check valve.

The unregulated circulating pump in the generator circuit is only operated when the compressor is running in order to reduce the runtimes. The uniform flow through the buffer tank connected in series extends the runtimes of the compressor and ensures the required heating water flow in all operating situations. Integration option for hot water circulating pump (inside micrometer 180 mm, DN 32) and an additional mixed heating circuit (special accessories).

**Electric cable EVL ... to connect the heat pump and the hydraulic tower must be ordered separately.**

| Order reference | Art.-Nr. | Features  | Weight kg |
|-----------------|----------|---|-----------|
| HPL11MS         | 356850   | LA 11MS heating package and HPK 200S hydraulic tower  | 406       |
| HPL16MS         | 356860   | LA 16MS heating package and HPK 200S hydraulic tower  | 451       |
| HPL8AS          | 356720   | LA 8AS heating package and HPK 200S hydraulic tower   | 353       |
| HPL11TAS        | 362690   | LA 11TAS heating package and HPK 200S hydraulic tower | 380       |
| HPL16TAS        | 362700   | LA 16TAS heating package and HPK 200S hydraulic tower | 416       |
| HPL11AS         | 356730   | LA 11AS heating package and HPK 200S hydraulic tower  | 406       |
| HPL11MAS        | 363970   | LA 11MAS heating package and HPK 200S hydraulic tower | 382       |
| HPL16AS         | 356740   | LA 16AS heating package and HPK 200S hydraulic tower  | 451       |
| HPL16MAS        | 363980   | LA 16MAS heating package and HPK 200S hydraulic tower | 412       |
| HPL20AS         | 356750   | LA 20AS heating package and HPK 200S hydraulic tower  | 471       |
| HPL24AS         | 356760   | LA 24AS heating package and HPK 200S hydraulic tower  | 538       |
| HPL28AS         | 356770   | LA 28AS heating package and HPK 200S hydraulic tower  | 542       |
| HPL9PS          | 356780   | LA 9PS heating package and HPK 200S hydraulic tower   | 355       |
| HPL8PMS         | 363310   | LA 8PMS heating package and HPK 200S hydraulic tower  | 419       |
| HPL11PS         | 356790   | LA 11PS heating package and HPK 200S hydraulic tower  | 446       |
| HPL14PMS        | 363960   | LA 14PMS heating package and HPK 200S hydraulic tower | 456       |
| HPL17PS         | 356800   | LA 17PS heating package and HPK 200S hydraulic tower  | 517       |
| HPL22PS         | 356810   | LA 22PS heating package and HPK 200S hydraulic tower  | 547       |
| HPL26PS         | 356820   | LA 26PS heating package and HPK 200S hydraulic tower  | 558       |
| HPL22HS         | 356830   | LA 22HS heating package and HPK 200S hydraulic tower  | 598       |
| HPL26HS         | 356840   | LA 26HS heating package and HPK 200S hydraulic tower  | 605       |

The hydraulic tower cannot be ordered separately due to the integrated heat pump manager. For every combinable heat pump, there is a sales package consisting of the heat pump without controller and the hydraulic tower. The technical data for the heat pump can be found on the following pages.

If the heating water connection lines are more than 10 m long, the free compression values stated in the device information must be observed (minimum pipe diameter for volume flows of more than 1.5 m<sup>3</sup>/h: DN 32)!

### Mixer module for HPK 200S hydraulic tower



MMHHPK

Extension module for integration of an additional mixed heating circuit into the HPK 200S hydraulic tower, consisting of ready-to-use pipe set with strap-on sensor, electronically controlled circulating pump (delivery height max. 6 m) and mixer module (3-way mixer with actuator, 140 s runtime, connection voltage 1/N/PE ~230 V, 50 Hz, degree of protection IP 40); useable for a hot water flow of up to 2 m<sup>3</sup>/h.

| Order reference | Art.-Nr. | Short text                                | for device type | Weight kg |
|-----------------|----------|---|-----------------|-----------|
| MMHHPK          | 356930   | mixer module for HPK 200S hydraulic tower | HPK200S         | 10.9      |

## Hydro tower with external heat pump manager

### Compact installation for heating and domestic hot water preparation



HWK332

The hydro tower enables the fast and simple connection of a heat pump for heating purposes to a heating system with an unmixed heating circuit. The heat pump manager included in the scope of supply of the heat pump is used for the electronic control of the components (external wiring required). The following components are installed in a space-saving way and wired ready for use:

- Switchable pipe heater (2/4/6 kW)
- Buffer tank (100 l) with installation option for an additional immersion heater (up to CTHK 634).
- Hot water cylinder (300 l) with installation option for an additional heating element (flange heater).
- Electronically regulated circulating pump (energy-efficiency class A) pre-wired with coupling relay for an unmixed heating circuit (consumer circuit).
- Unregulated circulating pump integrated for the generator circuit and hot water circulating pump.
- The hydraulic isolation of the generator circuit and the consumer circuit is done via two differential pressureless manifolds (bypass pipes), which are each fitted with a check valve.

The unregulated circulating pump in the generator circuit is only operated when the compressor is running in order to reduce the runtimes. The uniform flow through the buffer tank connected in series extends the runtimes of the compressor and ensures the required heating water flow in all operating situations.

| Order reference | Art.-Nr. | for device type  | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|--|---------------------------|-----------|--|
| HWK332          | 362360   | LA 9 – 17TU, LA 11(T)AS, LA 20AS, LA 9 – 22PS<br>L19 / 11 / 20TE<br>S(H) 5 – 11TE<br>WI 9 / 14TE | 710 x 1890 x 950          | 210       |  |

If the heating water connection lines are more than 10 m long, the free compression values stated in the device information must be observed (minimum pipe diameter for volume flows of more than 1.5 m<sup>3</sup>/h: DN 32)!

## Air-to-water heat pump for installation close to walls

### Low-temperature air-to-water heat pump for installation close to walls

Max. flow temperature for heating 58 °C  
Gasing colour white aluminium



LA8AS

Air-to-water heat pumps for outdoor installation with external temperature controlled WPM 2006 plus heat pump manager. The diagonal air circuit allows installation close to walls. A minimum clearance of 30 cm must be allowed for on the air intake side. When mounting is done in an unprotected place, the air outlet must not be positioned against the main wind direction. Sound-optimised through the use of low-speed crescent wing axial-flow fans. Energy-efficient defrosting by reverse circulation und diagonally positioned evaporator. Universal design with optional DHW preparation and the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Integrated flow sensor and soft starter, return flow sensor and external temperature sensor included in the scope of supply.

**Electric cable EVL ... to connect the heat pump and heat pump manager, must be ordered separately.**

Lower operating limit heat source (heating operation) -25 °CUpper operating limit heat source (heating operation) 35°C;  
Refrigerant R404AConnection heating 1; Connection voltage 3/N/PE ~400 V, 50 Hz

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP A2/W35 | Connection voltage  | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|--|---------------------|---------------------------|-----------|--|
| LA8AS           | 342230   | 6.6/ 3.1 (3.0)                             | 3/N/PE~400 V, 50 Hz | 750x 1280 x 650           | 166       |  |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2 °C, W35 = heating water outlet temperature +35 °C)

### Low-temperature air-to-water heat pump for installation close to walls

Max. flow temperature for heating 58 °C  
Gasing colour white aluminium



LA..TAS

Air-to-water heat pumps for outdoor installation with external temperature controlled WPM 2006 plus heat pump manager. Sound-optimised through the use of low-noise „owl's wings“ ventilator blades; Energy-efficient defrosting by reverse circulation. High coefficients of performance due to compliance with EN 14511 for larger volume flows on the heat consumption side. Observe the minimum clearances for installation close to walls. Universal design with optional DHW preparation and the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Integrated flow sensor and soft starter, return flow sensor and external temperature sensor included in the scope of supply.

**Electric cable EVL ... to connect the heat pump and heat pump manager, must be ordered separately.**

Lower operating limit heat source (heating operation) -25 °CUpper operating limit heat source (heating operation) 35°C;  
Refrigerant R404AControl voltage 1 ~230V Connection heating 1

| Order reference | Art.-Nr. | Heat output<br>1 compressor at<br>A2/W35 / COP A2/W35 | Connection voltage   | Width x Height x<br>Depth mm | Weight<br>kg |  |
|-----------------|----------|---|----------------------|------------------------------|--------------|--|
| LA11TAS         | 362570   | 8.6/ 3.4  | 3/N/PE ~400 V, 50 Hz | 1050x 1340 x 852             | 193          |  |
| LA16TAS         | 362580   | 11.7/ 3.2   | 3/N/PE ~400 V, 50 Hz | 1074x 1550 x 852             | 231          |  |
| LA11MAS         | 363760   | 7.9/ 3.4  | 1/N/PE ~230 V, 50 Hz | 1050 x 1340 x 852            | 195          |  |
| LA16MAS         | 363770   | 11.9/ 3.1   | 1/N/PE ~230 V, 50 Hz | 1074 x 1550 x 852            | 225          |  |

Heat output and COP according to EN 14511 at A2/W35 (A2 = air intake temperature +2 °C, W35 = heating water outlet temperature +35 °C)

The air outlet must be positioned at a right angle to the main wind direction if unsheltered outdoor installation is carried out.

## Air-to-water heat pump for free-standing installation

### Low-temperature air-to-water heat pump

#### for free-standing installation



LA16AS

Air-to-water heat pumps for outdoor installation with external temperature controlled WPM 2006 plus heat pump manager. Sound-optimised through the use of low-noise crescent wing axial-flow fans and deflector hoods. Energy-efficient defrosting by reverse circulation und inclined evaporator. Universal design with optional DHW preparation and the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Integrated flow sensor and soft starter, return flow sensor and external temperature sensor included in the scope of supply.

**Electric cable EVL... to connect the heat pump and heat pump manager, must be ordered separately.**

Lower operating limit heat source (heating operation) -25 °C; Upper operating limit heat source (heating operation) 35°C;

Refrigerant R404A; Connection heating 1°

Max. flow temperature for heating 55 °C

Gassing colour white aluminium

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP A2/W35 | Connection voltage   | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|----------------------|---------------------------|-----------|
| LA11MS          | 342420   | 9.1/ 3.4 (3.3)                             | 1/N/PE ~230 V, 50 Hz | 1360x 1360 x 850          | 219       |
| LA16MS          | 351270   | 12.7/ 3.2 (3.0)                            |                      | 1550x 1570 x 850          | 264       |
| LA11AS          | 339950   | 8.8/ 3.2 (3.1)                             |                      | 1360x 1360 x 850          | 219       |
| LA16AS          | 339960   | 12.2/ 3.2 (3.1)                            | 3/N/PE ~400 V, 50 Hz | 1550x 1570 x 850          | 264       |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2°C, W35 = heating water outlet temperature +35°C).

### Reversible air-to-water heat pump

#### Optimised for heating



LA11MSR

Air-to-water heat pump for outdoor installation with external temperature controlled heat pump manager WPM 2006 R and reversible refrigerating circuit for heating and cooling. Sound-optimised through the use of low-noise crescent wing axial-flow fans and deflector hoods. Energy-efficient defrosting by reverse circulation und inclined evaporator. Universal design with optional DHW preparation and the option of flexible expansion for:

- bivalent operation (bivalent-renewable not possible)
- combined distribution systems for heating and cooling
- unmixed and mixed heating and cooling circuits

Silent cooling via panel heating/cooling systems requires the use of the room climate control station (special accessory) to regulate the flow temperature on the basis of the air temperature and humidity of a reference room.

**Electric cable EVL... R to connect the heat pump and heat pump manager must be ordered separately.**

Lower operating limit heat source (heating operation) -25 °C; Upper operating limit heat source (heating operation) 35°C ;

Lower operating limit heat source (cooling operation) 15°C; Upper operating limit heat source (cooling operation) 40°C ;

Refrigerant R404A; Connection heating 1°; Connection voltage 1/N/PE ~230 V, 50 Hz

Max. flow temperature for heating 55 °C

Flow temperature cooling min. 7 °C

Gassing colour white aluminium

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP A2/W35 | Cooling capacity 1 compressor / EER A27/W7 | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|--|---------------------------|-----------|
| LA11MSR         | 342690   | 8.9/ 3.4 (3.3)                             | 8.8/ 2.8                                   | 1360x 1360 x 850          | 224       |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2°C, W35 = heating water outlet temperature +35°C).

Cooling capacity and coefficient of performance according to EN 14511.

## Reversible air-to-water heat pump

### Optimised for heating operation with waste heat recovery

Max. flow temperature for heating 58 °C  
Flow temperature cooling min. 7 °C  
Casing colour white aluminium



LA11ASR

Air-to-water heat pump for outdoor installation with external temperature controlled heat pump manager WPM 2006 R and reversible refrigerating circuit for heating and cooling. Sound-optimised through the use of low-noise crescent wing axial-flow fans and deflector hoods. Energy-efficient defrosting by reverse circulation und inclined evaporator. Reversible refrigerating circuit with additional heat exchanger for higher DHW temperatures in heating operation and waste heat recovery in cooling operation. Universal design with the option of flexible expansion for:

- bivalent operation (bivalent-renewable not possible)
- combined distribution systems for heating and cooling
- unmixed and mixed heating and cooling circuits

Silent cooling via panel heating/cooling systems requires the use of the room climate control station (special accessory) to regulate the flow temperature on the basis of the air temperature and humidity of a reference room. Integrated soft starter, flow and return-flow sensors; external sensor (standard NTC-2) included in the scope of supply.

**Electric cable EVL ... R to connect the heat pump and heat pump manager must be ordered separately.**

Lower operating limit heat source (heating operation) -25 °CUpper operating limit heat source (heating operation) 35 °C Lower operating limit heat source (cooling operation) 15°C; Upper operating limit heat source (cooling operation) 40°C; Refrigerant R404A ; Connection heating 1%; Connection voltage 3/N/PE ~400 V, 50 Hz

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP A2/W35 | Cooling capacity 1 compressor / EER A27/W7 | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|--|---------------------------|-----------|
| LA11ASR         | 342730   | 8.8/ 3.2 (3.1)                             | 8.8/ 2.8                                   | 1360x 1360 x 850          | 241       |
| LA16ASR         | 340090   | 12.8/ 3.4 (3.2)                            | 12.5/ 2.6                                  | 1550x 1570 x 850          | 289       |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2 °C, W35 = heating water outlet temperature +35 °C). Cooling capacity and coefficient of performance according to EN 14511.

phase out: LA 11ASR

The use of waste heat for DHW preparation produces high coefficients of performance in cooling operation!

## Low-temperature air-to-water heat pump

### with two performance levels

Max. flow temperature for heating 58 °C  
Casing colour white aluminium



LA20AS

Air-to-water heat pumps for outdoor installation with external temperature controlled WPM 2006 plus heat pump manager and two compressors for output reduction when operating at partial load. Sound-optimised through the use of low-noise crescent wing axial-flow fans and deflector hoods. Energy-efficient defrosting by reverse circulation und inclined evaporator. Universal design with optional DHW preparation and the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Integrated flow sensor and soft starter, return flow sensor and external temperature sensor included in the scope of supply.

**Electric cable EVL ... to connect the heat pump and heat pump manager, must be ordered separately.**

Lower operating limit heat source (heating operation) -25 °CUpper operating limit heat source (heating operation) 35°C; Refrigerant R404AConnection heating 1%; Connection voltage 3/N/PE ~400 V, 50 Hz

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP A2/W35 | Heat output with 2 compressors / COP A2/W35 | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|---|---------------------------|-----------|
| LA20AS          | 339970   | 9.3/ 3.2 (3.1)                             | 14.9/ 3.1 (3.0)                             | 1550x 1570 x 850          | 284       |
| LA24AS          | 339980   | 10.9/ 3.0 (3.0)                            | 19.2/ 3.2 (3.1)                             | 1680x 1710 x 1000         | 351       |
| LA28AS          | 339990   | 12.8/ 3.1 (3.0)                            | 22.3/ 3.2 (3.1)                             |                           | 355       |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2 °C, W35 = heating water outlet temperature +35 °C).

## Air-to-water heat pump with higher flow temperatures

### Medium-temperature air-to-water heat pump for installation close to walls

Max. flow temperature for heating 65 °C  
Casing colour white aluminium



LA9PS

Medium-temperature air-to-water heat pumps for outdoor installation with external temperature controlled WPM 2006 plus heat pump manager. Sound-optimised through the use of low-speed crescent wing axial-flow fans. When mounting is done in an unprotected place, the air outlet must not be positioned against the main wind direction. Energy-efficient defrosting by reverse circulation. Universal design with optional DHW preparation and the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Integrated flow sensor and soft starter, return flow sensor and external temperature sensor included in the scope of supply.

**Electric cable EVL ... to connect the heat pump and heat pump manager, must be ordered separately.**

Lower operating limit heat source (heating operation) -25 °CUpper operating limit heat source (heating operation) 35°C; Refrigerant R290Connection heating 1%; Connection voltage 3/N/PE ~400 V, 50 Hz

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP A2/W35 | Connection voltage  | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|---------------------|---------------------------|-----------|
| LA9PS           | 340000   | 7.1/ 3.2 (3.1)                             | 3/N/PE~400 V, 50 Hz | 770x 1320 x 660           | 168       |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2 °C, W35 = heating water outlet temperature +35 °C). The high flow temperatures are available for DHW preparation all year round!

## Medium-temperature air-to-water heat pump for free-standing installation



LA11PS

Medium-temperature air-to-water heat pumps for outdoor installation with external temperature controlled WPM 2006 plus heat pump manager. Sound-optimised through the use of noise-reducing crescent wing axial-flow fans and air deflector hoods; energy-efficient hot gas defrosting. Universal design with optional DHW preparation and the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Integrated flow sensor and soft starter, return flow sensor and external temperature sensor included in the scope of supply.

**Electric cable EVL... to connect the heat pump and heat pump manager, must be ordered separately.**

Lower operating limit heat source (heating operation) -25 °CUpper operating limit heat source (heating operation) 35°C;

Refrigerant R290Connection heating 1 1/4

Max. flow temperature for heating 65 °C  
Gasing colour white aluminium

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP A2/W35 | Connection voltage  | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|---------------------|---------------------------|-----------|
| LA8PMS          | 362350   | 6.1/ 3.2 (3.1)                             | 1/N/PE~230 V, 50 Hz | 1362x 1361 x 852          | 232       |
| LA11PS          | 353320   | 9.2/ 3.1 (3.0)                             | 3/N/PE~400 V, 50 Hz | 1550x 1570 x 850          | 259       |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2°C, W35 = heating water outlet temperature +35°C) .  
The high flow temperatures are available for DHW preparation all year round!

## Medium-temperature air-to-water heat pump with two performance levels



LA26PS

Medium-temperature air-to-water heat pump for outdoor installation with external temperature controlled WPM 2006 plus heat pump manager and two compressors for flexible capacity. Sound-optimised through the use of noise-reducing crescent wing axial-flow fans and air deflector hoods; energy-efficient hot gas defrosting. Universal design with optional DHW preparation and the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Integrated flow sensor and soft starter, return flow sensor and external temperature sensor included in the scope of supply.

**Electric cable EVL... to connect the heat pump and heat pump manager, must be ordered separately.**

Lower operating limit heat source (heating operation) -25 °CUpper operating limit heat source (heating operation) 35°C;

Refrigerant R290Connection heating 1 1/4; Connection voltage 3/N/PE~400 V, 50 Hz

Max. flow temperature for heating 65 °C  
Gasing colour white aluminium

| Order reference | Art.-Nr. | Heatoutput with 1 compressor / COP A2/W35 | Heatoutput with 2 compressors / COP A2/W35 | connection voltage   | Width x Height x Depth mm | Weight kg |
|-----------------|----------|---|--|----------------------|---------------------------|-----------|
| LA14PMS         | 363820   | 5.8 / (2.9)                               | 10.2 / (3.1)                               | 1/N/PE ~230 V, 50 Hz | 1550 x 1570 x 850         | 256       |
| LA17PS          | 353330   | 8.7/ 3.2 (3.0)                            | 14.5/ 3.1 (3.0)                            |                      | 1550x 1570 x 850          | 330       |
| LA22PS          | 348420   | 10.6/ 3.0 (3.0)                           | 16.7/ 3.1 (3.0)                            | 3/N/PE ~400 V, 50 Hz |                           | 360       |
| LA26PS          | 351890   | 11.7/ 3.0 (3.0)                           | 18.8/ 3.0 (3.0)                            |                      | 1680x 1710 x 1000         | 371       |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2°C, W35 = heating water outlet temperature +35°C) .  
The high flow temperatures are available for DHW preparation all year round!

## High-temperature air-to-water heat pump with low- and high-temperature levels



LA22HS

High temperature air-to-water heat pump for outdoor installation with external temperature controlled heat pump manager. Sound-optimised through the use of low-noise crescent wing axial-flow fans and deflector hoods. Energy-efficient defrosting by reverse circulation und inclined evaporator. Universal design with optional DHW preparation and the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

In the summer a maximum heating flow temperature of 58°C is available for domestic hot water preparation. Integrated flow sensor and soft starter, return flow sensor and external temperature sensor included in the scope of supply.

**Electric cable EVL... to connect the heat pump and heat pump manager, must be ordered separately.**

Lower operating limit heat source (heating operation) -25 °CUpper operating limit heat source (heating operation) 35°C;

Refrigerant R404AConnection heating 1 1/4; Connection voltage 3/N/PE~400 V, 50 Hz

Max. flow temperature for heating 75 °C  
Gasing colour white aluminium

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP A2/W35 | Heat output 2 compressor / COP A-7/W45 | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|--|---------------------------|-----------|
| LA22HS          | 340120   | 13.6/ 3.1 (3.0)                            | 13.5 / 2.1                             |                           | 411       |
| LA26HS          | 340130   | 15.9/ 3.2 (3.0)                            | 15.2 / 2.2                             | 1680x 1710 x 1000         | 418       |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2°C, W35 = heating water outlet temperature +35°C).  
Heat output with 2 compressors and COP acc. to EN 14511 at A-7/W45 (A-7 = air intake temp. -7 °C, W45 = heating water outlet temp. +45 °C)

The maximum flow temperature of 75 °C is reached at an air intake temperature from -25° C to +10° C (high-temperature level).

At outdoor temperatures above 10 °C, the maximum flow temperature is +58 °C (low-temperature level).

### Electric connecting line heat pump – heat pump manager



EVL ...

Control line between the heat pump manager and the air-to-water heat pump for outdoor installation. Wired ready for use and with coded plug connections at both ends for installation in a protective tube (min. diameter 70 mm, non-confusable: Round plug for connection to the heat pump).

| Order reference | Art.-Nr. | for device type               | length m | Weight kg |  |
|-----------------|----------|-------------------------------|----------|-----------|--|
| EVL 996-1       | 321990   | LA...AS<br>LA...PS<br>LA...MS | 10       | 2.9       |  |
| EVL 997-1       | 322000   |                               | 20       | 4.6       |  |
| EVL 998-1       | 322010   |                               | 30       | 8.7       |  |
| EVL 999-1       | 359120   |                               | 40       | 12.8      |  |

Should be installed separately from the mains cable.

Extension of the control line by the owner is not allowed!

### Electric connecting line heat pump – heat pump manager



EVL 10...30R

Control line between the heat pump manager WPM 2006 R and a reversible air-to-water heat pump for outdoor installation. Wired ready for use und with coded plug connections on both ends (non-confusable) for installation in a protection tube (diameter min. 70 mm).

| Order reference | Art.-Nr. | for device type | length m | Weight kg |  |
|-----------------|----------|-----------------|----------|-----------|--|
| EVL 10R         | 342510   | LA...R          | 10       | 5         |  |
| EVL 20R         | 342520   |                 | 20       | 9         |  |
| EVL 30R         | 342530   |                 | 30       | 14        |  |
| EVL 40R         | 363720   |                 | 40       | 18        |  |

Should be installed separately from the mains cable.

Extension of the control line by the owner is not allowed!

### Heating water connection line, heat pump – heating system

#### Optimised for connection to a heat pump



HVL...

Isolated 2-pipe system (suitable for ground-laying) with ready-to-use 90° bend for connection to a heat pump installed outdoors. Suitable for heat pumps for heating and cooling; max. operating temperature 95 °C; max. operating pressure 6 bar (at 65 °C – 9 bar); loading capacity SWL 60 (33 kN/m)<sup>2</sup>. Consisting of PE-Xa medium pipes with EVOH barrier layer to prevent oxygen diffusion, closed-cell crosslinked PE foam and a highly-flexible corrugated PE-HD cover pipe; includes a ready-to-use 90° connection pipe (length 1.2 m) for quick and easy connection to the heat pump, including two PE end caps, hazard-warning tape „Caution district heating“ and four screw fittings (2 x 1 1/4" internal thread, 2 x 1 1/4" external thread).

| Order reference | Art.-Nr. | Connection heating " | Features  | Weight kg |  |
|-----------------|----------|----------------------|---|-----------|--|
| HVL25-50        | 358650   | 1 1/4                | Length 5 m + 1.2 m connection pipe, 2 x 32/2.9 Ø cover pipe, 145 mm   | 29        |  |
| HVL25-75        | 358660   |                      | Length 7.5 m + 1.2 m connection pipe, 2 x 32/2.9 Ø cover pipe, 145 mm | 33        |  |
| HVL25-100       | 358670   |                      | Length 10 m + 1.2 m connection pipe, 2 x 32/2.9 Ø cover pipe, 145 mm  | 38        |  |
| HVL25-150       | 358880   |                      | Length 15 m + 1.2 m connection pipe, 2 x 32/2.9 Ø cover pipe, 145 mm  | 42        |  |
| HVL32-150       | 358680   |                      | Length 15 m + 1.2 m connection pipe, 2 x 40/3.7 Ø cover pipe, 175 mm  | 61        |  |
| HVL32-200       | 358690   |                      | Length 20 m + 1.2 m connection pipe, 2 x 40/3.7 Ø cover pipe, 175 mm  | 74        |  |
| HVL32-250       | 358700   |                      | Length 25 m + 1.2 m connection pipe, 2 x 40/3.7 Ø cover pipe, 175 mm  | 88        |  |

Additional, transitional screw connections (1 1/2" thread-sealing to 1 1/2" flat-sealing) are required for high-efficiency heat pumps.

The pressure drops required for pump dimensioning can be found in the installation instructions.

## Connection heat pump – heating water connection line

### Optimised for connection to a heat pump



VSF..

Flexible hose connection set, length 250 mm, for fast and simple connection of an air-to-water heat pump (installed outdoors) to a heating water connection line laid under the ground. Consists of two insulated stainless steel Wellflex pipes with cap nuts and screw connections.

| Order reference | Art.-Nr. | for device type   | Connection heating " | Features                       | Weight kg |
|-----------------|----------|---|----------------------|--------------------------------|-----------|
| VSF25           | 361790   | LA 9 – 17TU<br>LA 9 – 16AS<br>LA 9 – 11PS               | 1 1/4                | Stainless steel Wellflex DN 25 | 1.4       |
| VSF32           | 361800   | LA 25TU<br>LA 20 – 28AS<br>LA 17 – 26PS<br>LA 22 – 26HS |                      | Stainless steel Wellflex DN 32 | 1.4       |

## House infeeds for heating water connection lines

### For pressuring and non-pressuring water



MDM..



MDF..

House infeeds as an accessory for HVL 25 and HVL 32 heating water connection lines. The MDM sealing collars, consisting of a protection tube with shrink hose, are suitable for non-pressuring water (rain water, surface water and leakage water). The MDF sealing flange (stainless steel V2A) is suitable for pressuring water (slope water, ground water, plain tracts and water veins).

| Order reference | Art.-Nr. | Short text   | Features   | Weight kg |
|-----------------|----------|--|--|-----------|
| MDM145          | 358890   | dW-sealing collar (protection tube with shrink hose) | Sealing collar for HVL 25 (cover Ø 145 mm) as a house infeed (recommended drilling Ø 220 mm) through brickwork | 1.3       |
| MDM175          | 358900   |  | Sealing collar for HVL 32 (cover Ø 175 mm) as a house infeed (recommended drilling Ø 260 mm) through brickwork | 1.5       |
| MDF145          | 358910   | dW-sealing flange (stainless steel V2A)              | Wall-sealing flange for HVL 25 (cover Ø 145 mm), sealing width 80 mm, recommended drilling Ø 200 mm            | 2.3       |
| MDF175          | 358920   |  | Wall-sealing flange for HVL 32 (cover Ø 175 mm), sealing width 80 mm, recommended drilling Ø 250 mm            | 2.6       |

#### For brickwork walls:

So that water cannot penetrate the house infeeds, these must be painted with a bitumen-based protective coating. The house feed-through (MDF) must additionally be stabilised with a casing tube to seal it against pressuring water.

## General installation material

### for connecting the heat pump to the heating system



SMF..



AS...



TUE...



SCHT...

| Order reference | Art.-Nr. | Short text  | Connection heating " | Features  | Weight kg |
|-----------------|----------|---|----------------------|---|-----------|
| SMF25           | 362130   | D25 dirt trap   | 1                    | Mesh size 0.6 mm for LA 8 – LA 16AS(R)/PS   | 1.0       |
| SMF32           | 362140   | D32 dirt trap   | 1 1/4                | Mesh size 0.6 mm for LA 17 – 28PS/AS/HS   | 1.2       |
| AS976           | 322180   | 1" connecting hose  | 1                    | Flexible, compression-proof hose for connecting the heat pump to the heating system, length 10 m, can be cut to length, without insulation. | 7.0       |
| AS976-1         | 330530   | 1 1/4" connecting hose  | 1 1/4                |   | 8.5       |
| SCHT975-1       | 322250   | 1" external thread hose nozzle for 1" connecting hose         | 1                    |   | 0.2       |
| SCHT975-3       | 322260   | 1 1/4" external thread hose nozzle for 1" connecting hose     | 1 1/4                | Hose nozzle with external thread and hose clip for connecting hose, (for connection to the heating system e.g. compact manifold).           | 0.3       |
| SCHT975-4       | 330540   | 1 1/4" external thread hose nozzle for 1 1/4" connecting hose |                      |   | 0.3       |
| TUE430          | 337430   | 1" nozzle for 1" connecting hose                              | 1                    | Nozzle with cap nut (internal thread) for connecting hose (for connection to heat pump).  | 0.2       |
| TUE440          | 337440   | 1 1/4" nozzle for 1 1/4" connecting hose                      | 1 1/4                |   | 0.3       |

Their allocation to heat pumps and further information concerning the recommended use of the expansion joints can be found in the product section on heat pump distribution systems.



RKSWPM

### Room climate control station for temperature and humidity measurement

This accessory is essential for silent cooling using panel heating/cooling systems. Connection to a cooling controller to control the flow temperature based on the measured room temperature and humidity via a reference room.

| Order reference | Ait.-Nr. | for device type | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|-----------------|--------------------------|-----------|--|
| RKSWPM          | 342220   | WPM             | 127x 80 x 30             | 0.2       |  |



TPWWPM



TPF341

### Dew point monitor and dew point sensors

#### Dew point monitor

Switching relay for electronic evaluation of up to 5 connectable dew point sensors to interrupt cooling operation of the complete system in case of condensation at vulnerable points in the cooling distribution system; TPF 341 dew point sensors must be ordered separately; connection to the cooling controller; operating voltage 24 V~ / 50 Hz.

#### Dew point sensor

Flexible PCB which sends a signal to the dew point monitor (TPW WPM) when it comes into contact with moisture, connection cable (10 m, 2 x 0.25 mm<sup>2</sup>).

| Order reference | Ait.-Nr. | Short text       | for device type | Wdth x Height x Depth mm |  |
|-----------------|----------|------------------|-----------------|--------------------------|--|
| TPWWPM          | 350970   | Dewpoint monitor | WPM             | 35x 86 x 60              |  |
| TPF341          | 350980   | Dewpoint sensor  | RTK 601U        | 38x 40                   |  |

When the dew point sensor comes into contact with condensation, the cooling of the system is interrupted!



RTK 601U

### Heating/cooling ON/OFF room temperature controller

#### Room temperature controller

Electronic room temperature controller heating/cooling; switchable between "Heating" and "Cooling" operating modes using an external change-over contact of the heat pump manager; flat switch mounting frame for flush mounting as standard; can be installed in virtually all flat switch programs using an adapter element (50 x 50 mm according to DIN 49075) provided by the flat switch program manufacturer; switch ON / antifreeze; controlling range 5 to 30 °C; thermostat dial; temperature range limitation in the casing cover; operating voltage 24 V~/50 Hz; switching capacity 24 V AC ~1 A, can control up to 5 valve actuators (24 V~ closed when de-energised), IP30 when flush-mounted, colour alpine white (similar to RAL 9010). Dew point sensor TPF 341, for interrupting cooling operation when there is risk of condensate, optional connection (dew point sensors are not included in the scope of supply).

#### Dew point sensor

Flexible OCB, which sends a signal to the room temperature controller (RTK 601U) when it comes into contact with moisture, connection cable (10 m, 2 x 0.25 mm<sup>2</sup>).

| Order reference | Ait.-Nr. | Short text                                 | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|--|--------------------------|-----------|--|
| RTK 601U        | 355610   | Roomtemperature controller heating/cooling | 82x 86 x 45              | 0.2       |  |
| TPF341          | 350980   | Dewpoint sensor                            | 38x 40                   | 0.1       |  |

When the dew point sensor comes into contact with condensation, the cooling of a room is interrupted by the motors attached to the room temperature controller.

Further room temperature controllers are listed in the chapter on control and regulation devices!

## Air-to-water heat pump with simplified regulation

### Air-to-water heat pump with simplified controller

Max. flow temperature for heating 58 °C  
Gassing colour white aluminium

#### Compact design



LAK10M

Air-to-water heat pumps for close-to-wall outside installation and integrated heat pump control. The remote control included in the scope of supply enables the manual setting of the desired return temperature or the external switching via a higher-level regulation system. Energy-efficient defrosting by reverse circulation. Essential components of the heating circuit are already integrated into the device:

- Built-in pipe heater (2 / 4 / 6 kW),
- Expansion vessel (8 l)
- Safety module
- Return flow and external temperature sensors

Lower operating limit heat source (heating operation) -20 °C; Upper operating limit heat source (heating operation) 35 °C;  
Refrigerant R404A; Connection heating 1'; Connection voltage 1/N/PE ~230 V, 50 Hz

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP A2/W35 | Connection voltage  | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|---------------------|---------------------------|-----------|
| LAK10M          | 354540   | 8.1/ 3.4 (3.2)                             | 1/N/PE~230 V, 50 Hz | 1285x 880 x 695           | 185       |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2 °C, W35 = heating water outlet temperature +35 °C)

## Reversible air-to-water heat pump with simplified controller

### Reversible air-to-water heat pump

Max. flow temperature for heating 58 °C  
Flow temperature cooling min. 7 °C  
Gassing colour white aluminium

#### Compact design optimised for heating



LAK10MR

Air-to-water heat pump for outdoor installation with reversible refrigerating circuit for heating and cooling and simplified regulation. The remote control included in the scope of supply enables the manual setting of the desired room temperature or the external switching via a higher-level regulation system. Essential components of the heating circuit are already integrated into the device:

- Built-in pipe heater (2 / 4 / 6 kW),
- Heat circulating pump (note the free compression)
- Expansion vessel (8 l)
- Safety module
- Return flow and external temperature sensors

Lower operating limit heat source (heating operation) -20 °C; Upper operating limit heat source (heating operation) 35 °C ; Lower operating limit heat source (cooling operation) 17°C; Upper operating limit heat source (cooling operation) 40°C ;  
Refrigerant R407C; Connection heating 1'; Connection voltage 1/N/PE ~230 V, 50 Hz

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP A7/W35 | Cooling capacity 1 compressor / EER A35/W7 | Connection voltage  | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|--|---------------------|---------------------------|-----------|
| LAK10MR         | 354510   | 9.3/ 3.8                                   | 7.8/ 2.2                                   | 1/N/PE~230 V, 50 Hz | 1270x 860 x 670           | 170       |

Heat output and COP according to EN 14511 at A7/W35 (A7 = air intake temperature +7 °C, W35 = heating water outlet temperature +35 °C). Cooling capacity and COP at A35/W7 (A35 = air intake temperature +35 °C, W7 = cooling water outlet temperature +7 °C)

### Reversible air-to-water heat pump

Max. flow temperature for heating 60 °C  
Flow temperature cooling min. 7 °C  
Gassing colour white aluminium

#### Optimised for cooling at higher outside temp.



LAC 16TR

Air-to-water heat pump for outdoor installation with reversible refrigerating circuit for heating and cooling and simplified regulation. The remote control included in the scope of supply enables the manual setting of the desired return temperature or the external switching via a higher-level regulation system. Energy-efficient defrosting by reverse circulation. Essential components of the heating circuit are already integrated into the device:

- Built-in pipe heater (2 / 4 / 6 kW),
- Heat circulating pump (note the free compression)
- Expansion vessel (8 l)
- Safety module
- Return flow and external temperature sensors

Lower operating limit heat source (heating operation) -20 °C; Upper operating limit heat source (heating operation) 35 °C ; Lower operating limit heat source (cooling operation) 15°C; Upper operating limit heat source (cooling operation) 45°C ;  
Refrigerant R417A; Connection heating 1'; Connection voltage 3/N/PE ~400 V, 50 Hz

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP A7/W35 | Cooling capacity 1 compressor / EER A35/W7 | Connection voltage  | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|--|---------------------|---------------------------|-----------|
| LAC 16TR        | 355240   | 13.3/ 3.7                                  | 14.0/ 2.8                                  | 3/N/PE~400 V, 50 Hz | 1270x 860 x 670           | 196       |

Heat output and COP according to EN 14511 at A7/W35 (A7 = air intake temperature +7 °C, W35 = heating water outlet temperature +35 °C). Cooling capacity and COP at A35/W7 (A35 = air intake temperature +35 °C, W7 = cooling water outlet temperature +7 °C)

### Air-to-water swimming pool heat pump with titanium heat exchanger

Casing colour white aluminium



LAS10-22M(T)

Air-to-water heat pump for outdoor installation for heating swimming pool water. Titanium heat exchanger for safe operation, also suitable for salt water and any type of water preparation; efficient use of environmental energy thanks to SCROLL compressor; year-round operation thanks to integrated automatic defrosting as standard; soft starter as standard; control via wired remote control included in the scope of supply; stainless steel upright support; powder-coated sheet steel casing.

Lower operating limit heat source (heating operation) -10 °C Upper operating limit heat source (heating operation) 35 °C Refrigerant R407C Connection heating 1

| Order reference | Ait.-Nr. | Heatoutput<br>A10/W24 | Connection voltage   | Wdth x Height x<br>Depth<br>mm | Weight<br>kg |
|-----------------|----------|-----------------------|----------------------|--------------------------------|--------------|
| LAS10MT         | 352060   | 10.1                  | 1/N/PE ~230 V, 50 Hz | 1270x 860 x 670                | 147          |
| LAS15MT         | 352070   | 13.5                  |                      |                                | 155          |
| LAS22TT         | 352080   | 18.1                  |                      |                                | 162          |

Heat output and COP at A10/W24 (A10 = air intake temperature +10°C, W24 = heating water outlet temperature +24°C)

## Air-to-water heat pump with 90° air deflection

### Low-temperature air-to-water heat pump

Max. flow temperature for heating 58 °C  
Gasing colour white

#### Compact design



LIK8TE

Heat pump for indoor installation with integrated regulation WPM 2007 plus. The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). The integrated air flow with 90° air deflection enables direct corner installation without air ducts or wall installation with air ducts on the air outlet side. Sound-optimised through low-noise axial-flow fan and vibration-isolated compressor. High coefficients of performance using an evaporator optimised for heating operation and energy-efficient defrosting by reverse circulation. Compact design with optional domestic hot water preparation and integrated components for direct connection of an unmixed heating circuit (must not be used for bivalent systems):

- Expansion vessel (24 l)
- Heat circulating pump (free compression 45,000 Pa)
- Overflow valve and safety module
- Buffer tank (50 l) with integrated 2 kW heating element

Integrated soft starter, flow and return-flow sensors; external sensor (standard NTC-2) and 3 flexible connecting hoses (1", 500mm) included in the scope of supply.

Lower operating limit heat source (heating operation) -25 °C; Upper operating limit heat source (heating operation) 35°C; Refrigerant R404A; Connection heating 1"

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2°C, W35 = heating water outlet temperature +35°C).

**Delivery times for heat pumps with air output on the left on request!**

### Reversible air-to-water heat pump

Max. flow temperature for heating 58 °C  
Flow temperature cooling min. 7 °C  
Gasing colour white

#### Compact design optimised for heating



LIK8MER

Heat pump for heating and cooling for indoor installation with integrated WPM 2007 R controller. The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). The integrated air flow with 90° air deflection enables direct corner installation without air ducts or wall installation with air ducts on the air outlet side. Sound-optimised through low-noise axial-flow fan and vibration-isolated compressor. High coefficients of performance using an evaporator optimised for heating operation and energy-efficient defrosting by reverse circulation. Must not be used for bivalent systems. Compact design with optional DHW preparation and integrated components for direct connection with fan convectors:

- Expansion vessel (24 l)
- Heat circulating pump (free compression 45,000 Pa)
- Overflow valve and safety module
- Buffer tank (50 l) with integrated 2 kW heating element

Integrated soft starter, flow and return-flow sensors; external sensor (standard NTC-2) and 3 flexible connecting hoses (1", 500mm) included in the scope of supply.

Lower operating limit heat source (heating operation) -25 °C; Upper operating limit heat source (heating operation) 35 °C ;

Lower operating limit heat source (cooling operation) 15°C; Upper operating limit heat source (cooling operation) 40°C ;

Refrigerant R404A; Connection heating 1"; Connection voltage 1/N/PE ~230V, 50 Hz

| Order reference | Art.-Nr. | Heatoutput with 1 compressor / COP A2/W35 | Connection voltage   | Airoutlet | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---|----------------------|-----------|---------------------------|-----------|--|
| LIK8ME          | 352750   | 7.5/ 3.3 (3.2)                            | 1/N/PE ~230 V, 50 Hz | right     | 750x 1900 x 680           | 245       |  |
| LIK8TE          | 352590   |   | 3/PE ~400 V, 50 Hz   |           |                           |           |  |
| LIK8TEL         | 352600   |   |                      | left      | 750x 1900 x 650           | 264       |  |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2°C, W35 = heating water outlet temperature +35°C). Cooling capacity and coefficient of performance according to EN 14511.

**Start-up should be carried out by authorised after-sales service personnel, especially for heating and cooling equipment!**

## Low-temperature air-to-water heat pump

Max. flow temperature for heating 58 °C

Gasing colour white

### Universal design



LI9TE

Heat pump for indoor installation with integrated regulation WPM 2007 plus. The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). The integrated air flow with 90° air deflection enables direct corner installation without air ducts or wall installation with air ducts on the air outlet side. Sound-optimised through low-noise axial-flow fan and vibration-isolated compressor. High coefficients of performance using an evaporator optimised for heating operation and energy-efficient defrosting by reverse circulation. Universal design with optional DHW preparation and the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits
- Built-in pipe heater (2 / 4 / 6 kW),

Integrated soft starter, flow and return-flow sensors; external sensor (standard NTC-2) included in the scope of supply.

Lower operating limit heat source (heating operation) -25 °C Upper operating limit heat source (heating operation) 35°C;

Refrigerant R404A Connection heating 1'; Connection voltage 3/N/PE ~400 V, 50 Hz

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP A2/W35 | Airoutlet | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|--|-----------|--------------------------|-----------|--|
| LI9TE           | 352610   | 7.5/ 3.3 (3.2)                             | right     | 750x 1250 x 680          | 177       |  |
| LI9TEL          | 352620   |  | left      |                          |           |  |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2 °C, W35 = heating water outlet temperature +35 °C). Delivery times for heat pumps with air output on the left on request!

## Medium-temperature air-to-water heat pump

Max. flow temperature for heating 65 °C

Gasing colour white

### Compact design



LIK1 14TE

Heat pump for indoor installation with integrated regulation WPM 2007 plus. The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). The integrated air flow with 90° air deflection enables direct corner installation without air ducts or wall installation with air ducts on the air outlet side. High coefficients of performance thanks to compliance with EN 14511 for larger volume flows on the heat consumption side, optimised high-performance evaporator for heating operation and dual differential pressureless manifold for reducing pump operating times. Sound-optimised through low-noise ventilator and insulated metal casing; integrated solid-borne sound insulation for direct connection to the heating system with free-swinging compressor base plate.

Compact design with optional domestic hot water preparation and integrated components for direct connection of an unmixed heating circuit (must not be used for bivalent systems):

- Heat circulating pump (note the free compression)
- Expansion vessel (24 l)

120 l buffer tank (can be dismantled) with integrated switchable supplementary heating 3/6 kW, safety module. Integrated soft starter, flow and return-flow sensors; external sensor (standard NTC-2) included in the scope of supply. A heat circulating pump not included in the scope of supply is required for the distribution system.

Lower operating limit heat source (heating operation) -25 °C Upper operating limit heat source (heating operation) 35°C;

Refrigerant R417A Connection heating 1 1/4'; Connection voltage 3/N/PE ~400 V, 50 Hz

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP A2/W35 | Airoutlet | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|--|-----------|--------------------------|-----------|--|
| LIK114TE        | 356010   | 10.1/ 3.6 (3.4)                            | right     | 960x 2100 x 780          | 365       |  |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2 °C, W35 = heating water outlet temperature +35 °C).

For the air circuit, varying duct dimensions are to be used (air intake side 800, air outlet side 600)! Transport heights when disassembled:

Heat pump with hydraulics approx. 1.65 m, buffer tank approx. 55 cm.

## Air connection plate for air outlet side LIKI 14TE

### for modification of the air circuit



ABL14

Air connection plate for mounting on the LIKI 14TE air-to-water heat pump. By mounting the side covering panel onto the left side of the heat pump, the air outlet side can be moved from the standard right-side air circuit to the opposing left side; side wall painted (white, similar to RAL 9003) assembly material included.

| Order reference | Art.-Nr. | for device type | Weight kg |  |
|-----------------|----------|-----------------|-----------|--|
| ABL14           | 358210   | Liki14          | 3.5       |  |

## Air-to-water heat pump with straight air flow

### Low-temperature air-to-water heat pump

Max. flow temperature for heating 58 °C

Casing colour white

#### Universal design



Heat pump for indoor installation with integrated regulation WPM 2007 plus. The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). The integrated air flow enables corner or wall installation with air ducts at the air intake and the air outlet side. Sound-optimised through low-noise axial-flow fan and vibration-isolated compressor. High coefficients of performance using an evaporator optimised for heating operation and energy-efficient defrosting by reverse circulation. Universal design with optional DHW preparation and the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits
- Built-in pipe heater (2 / 4 / 6 kW) (not LI 11ME),

Integrated soft starter, flow and return-flow sensors; external sensor (standard NTC-2) included in the scope of supply.

Lower operating limit heat source (heating operation) -25 °C; Upper operating limit heat source (heating operation) 35°C;

Refrigerant R404A Connection heating 1 1/4

LI11/16TE(L)

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP A2/W35 | Connection voltage  | Air outlet | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|--|---|------------|---------------------------|-----------|--|
| LI11ME          | 352760   | 9.1/ 3.4 (3.3)                             | 1/N/PE~230 V, 50 Hz<br>8.8/ 3.2 (3.1)<br>3/N/PE ~400 V, 50 Hz | right      | 750x 1360 x 880           | 200       |  |
| LI11TE          | 352630   |  |   |            |                           |           |  |
| LI11TEL         | 352640   |  |   | left       |                           | 210       |  |
| LI16TE          | 352650   |  |   | right      |                           | 235       |  |
| LI16TEL         | 352660   | 12.2/ 3.2 (3.1)                            |   | left       |                           | 245       |  |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2°C, W35 = heating water outlet temperature +35°C).

Delivery times for heat pumps with air output on the left on request!

### Reversible air-to-water heat pump

Max. flow temperature for heating 58 °C

Flow temperature cooling min. 7 °C

Casing colour white

#### Optimised for heating



LI11MER

Heat pump for heating and cooling for indoor installation with integrated WPM 2007 R controller. The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). The integrated air flow enables corner or wall installation with air ducts at the air intake and the air outlet side. Sound-optimised through low-noise axial-flow fan and vibration-isolated compressor. High coefficients of performance using an evaporator optimised for heating operation and energy-efficient defrosting by reverse circulation. Universal design with optional DHW preparation and the option of flexible expansion for:

- bivalent operation (bivalent-renewable not possible)
- combined distribution systems for heating and cooling
- unmixed and mixed heating and cooling circuits

Silent cooling via panel heating/cooling systems requires the use of the room climate control station (special accessory) to regulate the flow temperature on the basis of the air temperature and humidity of a reference room. Integrated soft starter, flow and return-flow sensors; external sensor (standard NTC-2) included in the scope of supply.

Lower operating limit heat source (heating operation) -25 °C; Upper operating limit heat source (heating operation) 35 °C ;

Lower operating limit heat source (cooling operation) 15°C; Upper operating limit heat source (cooling operation) 40°C ;

Refrigerant R404A Connection heating 1 1/4; Connection voltage 1/N/PE~230 V, 50 Hz

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP A2/W35 | Cooling capacity 1 compressor / EER A27/W7 | Connection heating " | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|--|--|----------------------|---------------------------|-----------|--|
| LI11MER         | 352800   | 8.9/ 3.4 (3.3)                             | 8.8/ 2.8                                   | 1 1/4                | 750x 1360 x 880           | 205       |  |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2°C, W35 = heating water outlet temperature +35°C). Cooling capacity and coefficient of performance according to EN 14511.

## Reversible air-to-water heat pump

### Optimised for heating operation with waste heat recovery



LI11/16TER+

Max. flow temperature for heating 58 °C  
Flow temperature cooling min. 7 °C  
Casing colour white

Heat pump for heating and cooling for indoor installation with integrated WPM 2007 R controller. The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). The integrated air flow enables corner or wall installation with air ducts at the air intake and the air outlet side. Sound-optimised through low-noise axial-flow fan and vibration-isolated compressor. High coefficients of performance using an evaporator optimised for heating operation and energy-efficient defrosting by reverse circulation. Reversible refrigerating circuit with additional heat exchanger for higher DHW temperatures in heating operation and waste heat recovery in cooling operation. Universal design with the option of flexible expansion for:

- bivalent operation (bivalent-renewable not possible)
- unmixed and mixed heating and cooling circuits

Silent cooling via panel heating/cooling systems requires the use of the room climate control station (special accessory) to regulate the flow temperature on the basis of the air temperature and humidity of a reference room. Integrated soft starter, flow and return-flow sensors; external sensor (standard NTC-2) included in the scope of supply.

Lower operating limit heat source (heating operation) -25 °C; Upper operating limit heat source (heating operation) 35 °C ;

Lower operating limit heat source (cooling operation) 15°C; Upper operating limit heat source (cooling operation) 40°C ;

Refrigerant R404A Connection heating 1½"; Connection voltage 3/N/PE ~400 V, 50 Hz

| Order reference | Art.-Nr. | Heatoutput with 1 compressor / COP A2/W35 | Cooling capacity 1 compressor / EER A27/W7 | Connection heating " | Wdth x Height x Depth mm | Weight kg |
|-----------------|----------|---|--|----------------------|--------------------------|-----------|
| LI11TER+        | 352770   | 8.8/ 3.2 (3.1)                            | 8.8/ 2.8                                   | 1½"                  | 750x 1360 x 880          | 232       |
| LI16TER+        | 352780   | 12.8/ 3.4 (3.2)                           | 12.5/ 2.6                                  |                      | 750x 1570 x 880          | 270       |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2°C, W35 = heating water outlet temperature +35°C). Cooling capacity and coefficient of performance according to EN 14511.

Start-up should be carried out by authorised after-sales service personnel, especially for heating and cooling equipment!

The use of waste heat for DHW preparation produces high coefficients of performance in cooling operation!

## Built-under buffer tank



PSP140E

Nominal content 140 l; in air-to-water heat pump design to enable space-saving installation on top of the built-under buffer; polyurethane insulation with minimal downtime losses (can be used for heating and cooling), incl. 2 1½" bushes for immersion heaters (up to CTHK 636); 1" heating water connections; colour: white; brown red design screen.

| Order reference | Art.-Nr. | for device type   | Wdth x Height x Depth mm | Weight kg |
|-----------------|----------|-------------------|--------------------------|-----------|
| PSP140E         | 353970   | L11 – LI 20 ..(R) | 750x 600 x 880           | 72        |

## Low-temperature air-to-water heat pump

Max. flow temperature for heating 58 °C  
Casing colour white

### Universal design with two performance levels



LI20-28TE(L)

Heat pump for indoor installation with integrated regulation WPM 2007 plus. The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). The integrated air flow enables corner or wall installation with air ducts at the air intake and the air outlet side. Sound-optimised through low-noise axial-flow fan and vibration-isolated compressor. High coefficients of performance using an evaporator optimised for heating operation and energy-efficient defrosting by reverse circulation. Universal design with two compressors for output reduction when operating at partial load, optional DHW preparation and the possibility of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Integrated soft starter, flow and return-flow sensors; external sensor (standard NTC-2) included in the scope of supply.

Lower operating limit heat source (heating operation) -25 °C; Upper operating limit heat source (heating operation) 35°C;

Refrigerant R404A Connection heating 1½"; Connection voltage 3/N/PE ~400 V, 50 Hz

| Order reference | Art.-Nr. | Heatoutput with 1 compressor / COP A2/W35 | Heat output with 2 compressors / COP A2/W35 | Airoutlet | Wdth x Height x Depth mm | Weight kg |
|-----------------|----------|---|---|-----------|--------------------------|-----------|
| LI20TE          | 352670   | 9.3/ 3.2 (3.1)                            | 14.9/ 3.1 (3.0)                             | right     | 750x 1570 x 880          | 255       |
| LI20TEL         | 352680   |   |   | left      |                          |           |
| LI24TE          | 352690   | 10.9/ 3.0 (3.0)                           | 19.2/ 3.2 (3.1)                             | right     | 750x 1710 x 1030         | 310       |
| LI24TEL         | 352700   |   |   | left      |                          |           |
| LI28TE          | 352710   | 12.8/ 3.1 (3.0)                           | 22.3/ 3.2 (3.1)                             | right     |                          |           |
| LI28TEL         | 352720   |   |   | left      |                          |           |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2°C, W35 = heating water outlet temperature +35°C). Delivery times for heat pumps with air output on the left on request!

## High-temperature air-to-water heat pump

Max. flow temperature for heating 75 °C  
Casing colour white

### Universal design with low- and high-temperature levels



LIH22/26TE

Heat pump for indoor installation with integrated regulation WPM 2007 plus. The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). The integrated air flow enables corner or wall installation with air ducts at the air intake and the air outlet side. Sound-optimised through low-noise axial-flow fan and vibration-isolated compressor. High coefficients of performance using an evaporator optimised for heating operation and energy-efficient defrosting by reverse circulation. Universal design with low-temperature and high-temperature levels, optional DHW preparation and the possibility of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

In the summer a maximum heating flow temperature of 58 °C is available for domestic hot water preparation. Integrated soft starter, flow and return-flow sensors; external sensor (standard NTC-2) included in the scope of supply.

Lower operating limit heat source (heating operation) -25 °C Upper operating limit heat source (heating operation) 35 °C;  
Refrigerant R404A Connection heating 1½; Connection voltage 3/N/PE ~400 V, 50 Hz

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP A2/W35 | Heat output with 2 compressors / COP A-7/W45 | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|--|---------------------------|-----------|
| LIH22TE         | 352730   | 13.6/ 3.1 (3.0)                            | 13.5/ 2.1                                    | 750x 1710 x 1030          | 370       |
| LIH26TE         | 352740   | 15.9/ 3.2 (3.0)                            | 15.2/ 2.2                                    |                           | 377       |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2 °C, W35 = heating water outlet temperature +35 °C). Heat output with 2 compressors and COP acc. to EN 14511 at A-7/W45 (A-7 = air intake temp. -7 °C, W45 = heating water outlet temp. +45 °C)

The maximum flow temperature of 75 °C is reached at an air intake temperature from -25 °C to +10 °C (high-temperature level). At outdoor temperatures above 10 °C, the maximum flow temperature is +58 °C (low-temperature level).

## Low-temperature air-to-water heat pump

Max. flow temperature for heating 58 °C  
Casing colour white

### for wall installation with two performance levels



LI40AS

Heat pump for heating purposes for indoor installation with wall-mounted WPM 2006 plus heat pump manager and two compressors for output reduction when operating at partial load. The air is drawn in via the heat pump installed directly in front of the wall. The air circuit on the air outlet side is established via air ducts. Sound-optimised through low-noise, low-speed axial-flow fan and encapsulated compressor housing; energy-efficient defrosting by reverse circulation. High COPs through high-performance evaporator and compliance with the requirements of EN 14511 for larger volume flows on the heat consumption side. Universal design with two compressors for modulating operation, optional DHW preparation and the possibility of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Integrated soft starter and flow sensors; return flow and external sensors (standard NTC-2) included in the scope of supply.

Electrical connection line EVL 996-1 (10m) between heat pump and heat pump manager included in the scope of supply.  
Lower operating limit heat source (heating operation) -25 °C Upper operating limit heat source (heating operation) 35 °C;  
Refrigerant R404A Connection heating 1½; Connection voltage 3/N/PE ~400 V, 50 Hz

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP A2/W35 | Heat output with 2 compressors / COP A2/W35 | Air outlet | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|---|------------|---------------------------|-----------|
| LI40AS          | 358300   | 17.1/ 4.0 (3.9)                            | 30.4/ 3.9 (3.8)                             | fanside    | 1735x 2100 x 890          | 590       |

Heat output and COP according to EN 255 (EN 14511) at A2/W35 (A2 = air intake temperature +2 °C, W35 = heating water outlet temperature +35 °C).

### Airducts



LKK...

LKL...

LKB...

Optimally suited for air-to-water heat pump air circuits; GFRC exterior; thermally insulated and sound-insulated on the inside to prevent the formation of condensate and considerably reduce sound transmission. The ducts must be protected against driving rain and can, if necessary, be cut to length and/or painted with waterproof emulsion paint on site. Minor damage to the outer surface has no effect on the efficiency and can be repaired with standard plaster.

| Order reference | Ait.-Nr. | Short text      | for device type                     | length mm | Width x Height mm | Weight kg |  |
|-----------------|----------|-----------------|-------------------------------------|-----------|-------------------|-----------|--|
| LKK500          | 339720   | Shtr air duct   | LI18<br>LI 9                        | 625       | 500x 500          | 12        |  |
| LKL500          | 339710   | obg air duct    |                                     | 1250      |                   | 23        |  |
| LKB500          | 339730   | 90°fl duct bend |                                     | 800       |                   | 17        |  |
| LKK600          | 339750   | Shtr air duct   | LI11... (R)<br>LIK1 14 – air outlet | 625       | 600x 600          | 14        |  |
| LKL600          | 339740   | obg air duct    |                                     | 1250      |                   | 28        |  |
| LKB600          | 339760   | 90°fl duct bend |                                     | 1100      |                   | 25        |  |
| LKK700          | 339780   | Shtr air duct   | LI16... (R)<br>LI 20                | 625       | 694x 694          | 16        |  |
| LKL700          | 339770   | obg air duct    |                                     | 1250      |                   | 32        |  |
| LKB700          | 339790   | 90°fl duct bend |                                     | 1244      |                   |           |  |
| LKK800          | 339810   | Shtr air duct   | LI(H)2 – 28<br>LIK1 14 – air intake | 625       | 769x 769          | 17        |  |
| LKL800          | 339800   | obg air duct    |                                     | 1250      |                   | 34        |  |
| LKB800          | 339820   | 90°fl duct bend |                                     | 1319      |                   | 36        |  |
| LKK900          | 358250   | Shtr air duct   | LI(H)2 – 28                         | 625       | 950x 950          | 19        |  |
| LKL900          | 358260   | obg air duct    |                                     | 1250      |                   | 37        |  |
| LKB900          | 358270   | 90°fl duct bend |                                     | 1100      |                   | 40        |  |

For solid-borne sound insulation, the air ducts are not screwed directly onto the heat pump. They must be mounted (i. e. suspended) on site. The dimension drawings of the air ducts are available at [www.dimplex.de/luftkanäle](http://www.dimplex.de/luftkanäle) for downloading!

### Installation hardware



VSK...

Installation hardware for sealing the cut edges, where ducts need to be cut to length. Consisting of channel-section frame (U profile) and fitting compound.

| Order reference | Ait.-Nr. | for device type | Weight kg |  |
|-----------------|----------|-----------------|-----------|--|
| VSK500          | 341200   | airducts 500    | 2.0       |  |
| VSK600          | 341210   | airducts 600    | 3.0       |  |
| VSK700          | 341220   | airducts 700    | 3.5       |  |
| VSK800          | 341230   | airducts 800    | 4.0       |  |
| VSK900          | 358310   | airducts 900    | 4.5       |  |

### Sealing collars for air intake and air outlet



DMK...

Circumferential rubber gasket for vibration-free connection of the air duct to the air intake and air outlet side of the heat pump. The component is attached via screwed fastening frames.

| Order reference | Ait.-Nr. | packaging unit | for device type | Weight kg |  |
|-----------------|----------|----------------|-----------------|-----------|--|
| DMK500-1        | 340260   | 1              | airducts 500    | 4.0       |  |
| DMK600-1        | 356120   | 1              |                 | 4.5       |  |
| DMK600          | 340270   | 2              |                 | 9.0       |  |
| DMK700-1        | 356130   | 1              | airducts 700    | 5.0       |  |
| DMK700          | 340280   | 2              |                 | 10.0      |  |
| DMK800-1        | 356140   | 1              |                 | 6.0       |  |
| DMK800          | 340290   | 2              | airducts 800    | 12.0      |  |
| DMK900-1        | 358280   | 1              |                 | 14.0      |  |

One sealing ring each (packaging unit 1 item) must be ordered for the air intake and air outlet of air-to-water heat pumps with differing duct dimensions (e. g. LIKI 14TE).



IWS ...

## Air duct hose set

Air circuit for internally installed air-to-water heat pumps for use in rooms with low temperatures and low humidity. The set contains a 5m length of thermally-insulated and sound-insulated air hose which can be used for both the air intake and the air outlet side. The air intake and air outlet can be established via a light well or wall opening which must be constructed and insulated on site. Mounting plates for the heat pump and the wall opening for intake and outlet as well as all the required installation materials are included in the scope of supply.

| Order reference | Art.-Nr. | for device type | Diameter mm | Length m | Weight kg |  |
|-----------------|----------|-----------------|-------------|----------|-----------|--|
| IWS 11          | 337390   | LI11            | 500         | 5        | 50        |  |
| IWS 16          | 337400   | LI16            | 630         |          |           |  |

Cannot be used for reversible heat pumps and in rooms with high humidity!



RSG500

## Heat pump rain guard

Specially developed rain guard for protection from driving rain, for air-to-water heat pumps with low pressure loss of approx. 5 Pa ; the permissible overall pressure loss is not exceeded when standardly integrated with the air hose set and/or air ducts; aluminium frame (width 25 mm) for wall mounting; painted grey-white (RAL 9002).

| Order reference | Art.-Nr. | for device type  | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|------------------|---------------------------|-----------|--|
| RSG500          | 340220   | airducts 500     | 650x 650 x 50             | 3.0       |  |
| RSG600          | 340230   | airducts 600     | 750x 750 x 50             | 4.5       |  |
| RSG700          | 340240   | airducts 700     | 840x 840 x 50             | 6.0       |  |
| RSG800          | 340250   | airducts 800     | 920x 920 x 70             | 7.0       |  |
| RSG900          | 358290   | airducts 900     | 1128x 1128 x 70           | 9.0       |  |
| RSG1500         | 358350   | L40AS air intake | 1726x 1440 x 70           | 14.0      |  |



IWH ...

## Deflection hood for air-to-water heat pumps installed indoors

Deflector hood for reducing the air outlet noise of air-to-water heat pumps installed indoors; fastening frame (included in the scope of supply) mounted for fitting the deflector hood to the external building wall (rain guard not required), casing colour: white aluminium structured (similar RAL 9006), can be painted.

| Order reference | Art.-Nr. | for device type                         | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---|---------------------------|-----------|--|
| IWH 600         | 358620   | L11...(R)<br>LIK 8<br>LI 9<br>LIK1 14TE | 879x 758 x 343            | 16        |  |
| IWH 700         | 358630   | L16...(R)<br>LI 20                      | 879x 968 x 441            | 19        |  |
| IWH 800         | 358640   | L24<br>LI 28                            | 1029x 1108 x 503          | 25        |  |



SYL 250

## Elasticated sound insulation strip

For solid-borne sound insulation of heat pumps for indoor installation and compensation of floor unevenness; strip-shaped support for the base frame; 12 mm thick (deformation approx. 1 mm); max. load 140 kg/RM; 2.5 m long (can be cut to appropriate length), colour green.

| Order reference | Art.-Nr. | length mm | Width x Height mm | Weight kg |  |
|-----------------|----------|-----------|-------------------|-----------|--|
| SYL 250         | 352260   | 2500      | 30x 12            | 0.3       |  |



SAS...

## Heating water hose connection set

Hydraulic connection set to facilitate installation of air-to-water heat pumps. Consisting of:

- Two metal braided hoses (500 mm)
- two double nipples
- two 90° brackets
- two flat gaskets

| Order reference | Art.-Nr. | for device type | Connection heating " | Weight kg |  |
|-----------------|----------|-----------------|----------------------|-----------|--|
| SAS100          | 340320   | L9TE(L)         | 1                    | 2.2       |  |
| SAS110          | 340330   | LI(H) 1 – 28    | 1 1/4                | 3.5       |  |

## Special accessories cooling regulation



RKSWPM

### Room climate control station for temperature and humidity measurement

This accessory is essential for silent cooling using panel heating/cooling systems. Connection to a cooling controller to control the flow temperature based on the measured room temperature and humidity via a reference room.

| Order reference | Ait.-Nr. | for device type | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|-----------------|--------------------------|-----------|--|
| RKSWPM          | 342220   | WPM             | 127x 80 x 30             | 0.2       |  |



TPWWPM



TPF341

### Dew point monitor and dew point sensors

#### Dew point monitor

Switching relay for electronic evaluation of up to 5 connectable dew point sensors to interrupt cooling operation of the complete system in case of condensation at vulnerable points in the cooling distribution system; TPF 341 dew point sensors must be ordered separately; connection to the cooling controller; operating voltage 24 V~ / 50 Hz.

#### Dew point sensor

Flexible PCB which sends a signal to the dew point monitor (TPW WPM) when it comes into contact with moisture, connection cable (10 m, 2 x 0.25 mm<sup>2</sup>).

| Order reference | Ait.-Nr. | Short text       | for device type | Wdth x Height x Depth mm |  |
|-----------------|----------|------------------|-----------------|--------------------------|--|
| TPWWPM          | 350970   | Dewpoint monitor | WPM             | 35x 86 x 60              |  |
| TPF341          | 350980   | Dewpoint sensor  | RTK 601U        | 38x 40                   |  |

When the dew point sensor comes into contact with condensation, the cooling of the system is interrupted!



RTK 601U

### Heating/cooling ON/OFF room temperature controller

#### Room temperature controller

Electronic room temperature controller heating/cooling; switchable between "Heating" and "Cooling" operating modes using an external change-over contact of the heat pump manager; flat switch mounting frame for flush mounting as standard; can be installed in virtually all flat switch programs using an adapter element (50 x 50 mm according to DIN 49075) provided by the flat switch program manufacturer; switch ON / antifreeze; controlling range 5 to 30 °C; thermostat dial; temperature range limitation in the casing cover; operating voltage 24 V~/50 Hz; switching capacity 24 V AC ~1 A, can control up to 5 valve actuators (24 V~ closed when de-energised), IP30 when flush-mounted, colour alpine white (similar to RAL 9010). Dew point sensor TPF 341, for interrupting cooling operation when there is risk of condensate, optional connection (dew point sensors are not included in the scope of supply).

#### Dew point sensor

Flexible OCB, which sends a signal to the room temperature controller (RTK 601U) when it comes into contact with moisture, connection cable (10 m, 2 x 0.25 mm<sup>2</sup>).

| Order reference | Ait.-Nr. | Short text                                 | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|--|--------------------------|-----------|--|
| RTK 601U        | 355610   | Roomtemperature controller heating/cooling | 82x 86 x 45              | 0.2       |  |
| TPF341          | 350980   | Dewpoint sensor                            | 38x 40                   | 0.1       |  |

When the dew point sensor comes into contact with condensation, the cooling of a room is interrupted by the motors attached to the room temperature controller.

Further room temperature controllers are listed in the chapter on control and regulation devices!

### Heating and domestic hot water preparation package

Max. flow temperature for heating 58 °C  
Casing colour white

#### Heat pump and WWSP 229E built-under hot water cylinder



HPK..TEW

Consisting of compact brine-to-water heat pump, WWSP 229E built-under hot water cylinder and connection set for quick and easy connection of the individual components to the heating system.

##### Compact brine-to-water heat pump

Heat pump for heating purposes for indoor installation with integrated WPM EconPlus. Sound-optimised through insulated metal casing and double vibration-isolated compressor. Integrated solid-borne sound insulation for direct connection to the heating system. Economiser for high coefficients of performance. Sensor monitoring of the refrigerating circuit for high degree of operational safety; integrated thermal energy metering (display of the calculated thermal energy volume for heating and domestic hot water preparation on the WPM EconPlus heat pump manager). The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). Compact design with domestic hot water preparation and integrated components for direct connection of an unmixed heating circuit (must not be used for bivalent systems):

- Built-in pipe heater (2 / 4 / 6 kW) can be used for reheating domestic hot water up to 60 °C and as a stand-by for heating operation
- Electronically regulated heat circulating pump (efficiency class A, observe the free compression)
- DHW loading pump
- Expansion vessel (24 l) and safety module

Integrated brine components enable direct connection of the heat source:

- Brine circulating pump (note the free compression)
- Expansion vessel (8 l)
- Safety valve and pressure manometer

##### Built-under hot water cylinder

Nominal volume 227 l, tube heat exchanger (internal) – Heat exchanger area 2.9 m<sup>2</sup>, steel cylinder (with special internal enamelling) with protective anode, polyurethane insulation with minimal stand-by losses. Soft starter (from 9 kW), integrated flow and return sensor; external sensor (standard NTC-2), dirt filter for brine circuit included in the scope of supply.

##### Brine circuit manifold must be ordered separately.

Lower operating limit heat source (heating operation) -5 °C Upper operating limit heat source (heating operation) 25 °C;  
Refrigerant R407C Connection heating 1½ Heat source connection 1½.

| Order reference | Art.-Nr. | Heatoutput<br>1 compressor /<br>COP B0/W35 | Features                              | Width x Height x<br>Depth<br>mm | Weight<br>kg |
|-----------------|----------|--|---------------------------------------|---------------------------------|--------------|
| HPK7TEW         | 362590   | 6.8/ 4.1                                   | Package SIK 7TE-2, WWSP 229E, VS TEW  | 650x 2150 x 690                 | 111          |
| HPK9TEW         | 362600   | 9.0/ 4.2                                   | Package SIK 9TE-2, WWSP 229E, VS TEW  |                                 | 118          |
| HPK11TEW        | 362610   | 11.7/ 4.2                                  | Package SIK 11TE-2, WWSP 229E, VS TEW |                                 | 122          |

Heat output and COP according to EN255 (EN 14511) at B0/W35 (B0 = brine inlet temperature 0 °C, W35 = heating water outlet temperature +35 °C). With borehole heat exchangers, the free compression values in the device information are to be adhered to (max. heat exchanger depth at DN 32: 80 m)! Note: A minimum buffer volume of the heating system of 10% of the heating water flow must be ensured either by a buffer tank or other suitable measures! In heat pump heating systems, the underfloor heating can assume the function of the buffer tank connected in series if no individual room regulation is required or if regulation is carried out **based on the room temperature**. In this case, the heating surface of the reference room must guarantee the minimum heating water flow rate.

### Reference room regulation

#### Smart RTC (Room Temperature Controller)



RT Econ

Reference room controller for use in combination with compact brine-to-water heat pumps HPK 7, 9 and 11TEW. The controller measures the temperature difference between the actual room temperature and the set temperature, and communicates this to the heat pump manager. The return set temperature is calculated on the basis of this difference. The ~230 V voltage supply (2-core) and the bus cable (2-core, screened) must be provided by the customer.

Additional functions:

- „Operating mode“ button – switches between automatic and summer operating mode
- „Rapid heating“ button – 20, 40 and 60-minute rapid heating (blocks DHW)
- Warning signal displayed if a heat pump fault occurs

The reference room must be a living area which is permanently heated!

| Order reference | Art.-Nr. | Features                 | Width x Height x<br>Depth<br>mm |
|-----------------|----------|--------------------------|---------------------------------|
| RT Econ U       | 362660   | Flush-mounting version   | 86x 86 x 28                     |
| RT Econ A       | 363340   | Surface-mounting version | 143x 86 x 36                    |

## Passive cooling station for WPM EconPlus

### Passive cooling station

Module for passive cooling via borehole heat exchangers. Consisting of heat exchanger, brine circulating pump, temperature sensor, passive cooling controller and enclosed 3-way distribution valve (DN25) with electrothermal actuator. Cooling operation mode is added to the existing heat pump manager by an electronic connection between the heating and cooling controller. The components are permanently mounted in a white sheet metal casing, which can be mounted vertically or horizontally.

PKS..



| Order reference | Art.-Nr. | Short text                                  | for device type                           | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|---|---|--------------------------|-----------|--|
| PKS 14 Econ     | 362930   | passive cooling station with cooling module | HPIK - 11TEW<br>SI 22TU<br>SI 30 - 75TER+ | 650x 400 x 320           | 30        |  |

## Basic package for heating – low-temperature

Max. flow temperature for heating 58°C  
Gassing colour white

### Heat pump and buffer tank

Consisting of compact brine-to-water heat pump, built-under buffer tank PSP 100E and connection set VSH KS for quick and easy connection of the individual components to the heating system.

**Brine circuit manifold must be ordered separately.**



HPK7-14TE

| Order reference | Art.-Nr. | for device type | Heatoutput kW | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|-----------------|---------------|--------------------------|-----------|--|
| HPK7TE          | 353420   | SIK7TE          | 6.8           | 652x 1660 x 688          | 238       |  |
| HPK9TE          | 353430   | SIK9TE          | 9.0           |                          | 239       |  |
| HPK11TE         | 353440   | SIK11TE         | 11.7          |                          | 250       |  |
| HPK14TE         | 353450   | SIK14TE         | 14.4          |                          | 262       |  |

Heat output acc. to EN 255 at B0/W35 (B0 = brine inlet temp. 0°C, W35 = heating water outlet temp. +35°C)

The descriptions of the individual components can be found on the next pages!

## Basic package for heating – high-temperature

Max. flow temperature for heating 70°C  
Gassing colour white

### Heat pump and buffer tank

Consisting of compact brine-to-water heat pump, built-under buffer tank PSP 100E and connection set VSH KS for quick and easy connection of the individual components to the heating system.

**Brine circuit manifold must be ordered separately.**



HPKH6/9TE

## Passive cooling station and connecting set

### Passive cooling station

Module for passive cooling via borehole heat exchangers. Consisting of heat exchanger, brine circulating pump, temperature sensor, passive cooling controller and enclosed 3-way distribution valve (DN25) with electrothermal actuator. Cooling operation mode is added to the existing heat pump manager by an electrical connection between the heating and cooling controller; (software update may be necessary). The components are permanently mounted in a white sheet metal casing, which can be mounted vertically or horizontally.

PKS..



VSPKS

| Order reference | Art.-Nr. | Short text                                      | for device type | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|---|-----------------|--------------------------|-----------|--|
| PKS14           | 342460   | passive cooling station with cooling controller | SI(H)<br>SIK(H) | 650x 400 x 320           | 30        |  |
| VSPKS           | 348630   | tension hose kit for passive cooling station    | VSHKS with PKS  |                          | 17        |  |

The descriptions of the individual components can be found on the next pages!

### Supplementary package for DHW preparation

#### Hot water cylinder

The 400 l hot water cylinder is heated by the heat pump for heating purposes and offers convenient hot water preparation, also during longer shut-off times. It matches the height and design of the compact brine-to-water heat pump with built-under buffer tank.



HPK(H) ... WWSP 442E

| Order reference | Ait.-Nr. | Short text                                | Features  | Width x Height x Depth mm | Weight kg |
|-----------------|----------|---|---|---------------------------|-----------|
| WWSP TE         | 353460   | Supplementary package for DHW preparation | Domestic hot water preparation with short reheating times and adjustable time programs; sales package consisting of WWSP 442 E hot water cylinder with UP 80 circulating pump for domestic hot water preparation and WSW KS hot water connection kit. | 650x1660x680              | 190       |

The descriptions of the individual components can be found on the next pages!

### Supplementary package for DHW preparation

Hot-water temp. up to max. 60°C

Lower operating limit heat source (heating operation) 8°C

Upper operating limit heat source (heating operation) 35°C



AWP 30HLW

The hot water heat pump functions independently of the heat pump for heating purposes by using waste heat from the installation location and produces DHW temperatures up to max. 60°C in heat-pump-only operation.

| Order reference | Ait.-Nr. | Short text   | Features  | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|---|---------------------------|-----------|
| AWP 30HLW       | 351390   | Hot water heat pump with sheet steel casing, air duct connection and additional heat exchanger | Hot water preparation using active heat extraction from indoor air. Recommended temperature of the room in which the system is installed is approx. 15°C. | 660x1700x700              | 175       |

The descriptions of the individual components can be found on the next pages! The compact domestic ventilation unit (exhaust air, LWP 300W) is available in the same design with integrated DHW preparation!

### Built-under hot water cylinder and connection set

#### Built-under hot water cylinder

Nominal capacity 227 l, in brine-to-water heat pump design to enable space-saving installation on the built-under buffer, tube heat exchanger (internal), steel cylinder (special inside enamelling) with protection anode, polyurethane insulation with minimum stand-by losses; integrated temperature sensor for connection to the heat pump manager, colour: white, brown red design screen heat exchanger area 2.9 m<sup>2</sup> smooth pipe (internal), heating connection 1 1/4" external thread, hot water connection 1" external thread, circulation connection 3/4" internal thread.

#### Connection set

Hose set for easy connection of the compact brine-to-water heat pump and the built-under hot water cylinder to the heating systems. Consisting of 2 corrugated stainless steel pipes with high-and-low temperature insulation, 2 elbow unions with manual air bleeds and an installation option for the hot water circulating pump (pump not included in the scope of supply).



WWSP 229E

| Order reference | Ait.-Nr. | Short text                     | for device type       | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--------------------------------|-----------------------|---------------------------|-----------|
| WWSP 229E       | 353380   | Built-under hot water cylinder | up to SIK(H) 9        | 650x1040x680              | 110       |
| VSW229          | 356050   | Connection set, hot water      | SIK(H) with WWSP 229E |                           |           |

Can be used in service areas with short shut-off times or reduced hot water consumption.

Note: A minimum buffer volume of the heating system of 10% of the heating water flow must be ensured either by a buffer tank or other suitable measures!

## Brine-to-water heat pump in a compact design

### Low-temperature brine-to-water heat pump

Max. flow temperature for heating 58 °C

Gasing colour white

#### Compact design

Heat pump for indoor installation with integrated regulation WPM 2007 plus. The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). Integrated brine components enable direct connection of the heat source:

- Brine circulating pump (note the free compression)
- Expansion vessel (8 l)
- Safety valve and pressure manometer

Sound-optimised through insulated metal casing and double vibration-isolated compressor. Integrated solid-borne sound insulation for direct connection to the heating system. Economiser for high coefficients of performance. Compact design with optional domestic hot water preparation and integrated components for direct connection of an unmixed heating circuit (must not be used for bivalent systems):

- Heat circulating pump (note the free compression)
- Overflow valve and safety module
- Expansion vessel (24 l)

Soft starter (from SI(K) 9 upwards), integrated flow and return sensors; external sensor (standard NTC-2), dirt filter and large-capacity breather (1½") with micro air bubble deposition for brine circuit included in the scope of supply.

Lower operating limit heat source (heating operation) -5 °C Upper operating limit heat source (heating operation) 25°C; Refrigerant R407C Connection heating 1¼ Heat source connection 1¼



SIK7TE

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP B0/W35 | Connection voltage  | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|--|---------------------|--------------------------|-----------|--|
| SIK11ME         | 352990   | 11.8/ 4.4 (4.2)                            | 1/N/PE~230 V, 50 Hz | 650x 1115 x 680          | 191       |  |
| SIK16ME         | 353000   | 15.8/ 4.2 (4.0)                            |                     |                          | 203       |  |
| SIK7TE          | 352810   | 6.9/ 4.3 (4.1)                             |                     |                          | 179       |  |
| SIK9TE          | 352820   | 9.2/ 4.4 (4.2)                             |                     |                          | 180       |  |
| SIK11TE         | 352830   | 11.8/ 4.4 (4.2)                            |                     |                          | 191       |  |
| SIK14TE         | 352840   | 14.5/ 4.5 (4.3)                            |                     |                          | 203       |  |

Heat output and COP according to EN255 (EN 14511) at B0/W35 (B0 = brine inlet temperature 0°C, W35 = heating water outlet temperature +35°C). With borehole heat exchangers, the free compression values in the device information are to be adhered to (max. heat exchanger depth at DN 32: 80 m)!

### High-temperature brine-to-water heat pump

Max. flow temperature for heating 70 °C

Gasing colour white

#### Compact design with high coefficients of performance

Heat pump for indoor installation with integrated regulation WPM 2007 plus. The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). Integrated brine components enable direct connection of the heat source:

- Brine circulating pump (note the free compression)
- Expansion vessel (8 l)
- Safety valve and pressure manometer

Sound-optimised through insulated metal casing and double vibration-isolated compressor. Integrated solid-borne sound insulation for direct connection to the heating system. High COPs through economiser and compliance with the requirements of EN 14511 for larger volume flows on the heat consumption side. Compact design with optional domestic hot water preparation and integrated components for direct connection of an unmixed heating circuit (must not be used for bivalent systems):

- Heat circulating pump (note the free compression)
- Overflow valve and safety module
- Expansion vessel (24 l)

Soft starter (from SI(K) 9 upwards), integrated flow and return sensors; external sensor (standard NTC-2), dirt filter and large-capacity breather (1½") with micro air bubble deposition for brine circuit included in the scope of supply.

Lower operating limit heat source (heating operation) -5 °C Upper operating limit heat source (heating operation) 25°C Refrigerant R134a Connection heating 1¼ Heat source connection 1¼



SIKH6/9TE

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP B0/W35 | Connection voltage  | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|--|---------------------|--------------------------|-----------|--|
| SIKH6TE         | 356070   | 6.4/ 4.7 (4.5)                             | 3/N/PE~400 V, 50 Hz | 652x 1115 x 688          | 180       |  |
| SIKH9TE         | 356080   | 9.4/ 4.7 (4.5)                             |                     |                          | 203       |  |

Heat output and COP according to EN255 (EN 14511) at B0/W35 (B0 = brine inlet temperature 0°C, W35 = heating water outlet temperature +35°C). phase out

The maximum flow temperatures (up to 70 °C) are available for DHW preparation all year round, and allow DHW temperatures of up to 60 °C to be achieved without electrical reheating using a flange heater.

## Design tank for compact brine-to-water heat pump

### Design built-under buffer tank



PSP100E

Nominal content 100 l; in brine-to-water heat pump design to enable space-saving installation on top of the built-under buffer tank; polyurethane insulation for minimal downtime losses (can be used for heating and cooling); 1½" bush for immersion heaters (up to CTHK 635); 1¼" heating water connections; colour: white; brown red design screen.

| Order reference | Art.-Nr. | Shot text               |  | fr device type |                             |  | Wdth x Height x Depth mm | Weight kg      |    |  |
|-----------------|----------|-------------------------|--|----------------|-----------------------------|--|--------------------------|----------------|----|--|
| PSP100E         | 353360   | Built-under buffer tank |  |                | SIK(H) – 14<br>SI(H) 5 – 17 |  |                          | 650x 550 x 653 | 54 |  |

### Design hot water cylinder



WWSP 442E

Nominal content 400 l, in brine-to-water heat pump design, tube heat exchanger (internal), three supporting feet, steel cylinder (special inside enamelling) with protection anode, polyurethane insulation with minimal stand-by losses (approx. 2.7 kWh/24h), integrated temperature sensor for connection to the heat pump manager, colour white, brown red design screen.

| Order reference | Art.-Nr. | fr device type                              | Usable capacity l | Heat exchanger surface area m <sup>2</sup> | Con-nection heating " | Con-nection circula-tion " | Con-nection hot water " | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|---|-------------------|--|-----------------------|----------------------------|-------------------------|--------------------------|-----------|--|
| WWSP 442E       | 353370   | SI(H) – 14<br>SI(KH) 6 – 9<br>SI(H) 20 – 30 | 353               | 4.2  | 1¼                    | ¾                          | 1                       | 650x 1660 x 680          | 187       |  |

The reachable hot water temperatures are dependent on the maximum heat output of the heat pump, the heat exchanger area and the volume flow in the load circuit (the respective design for a maximum hot water temperature of 45 °C according to the project planning documentation). For heat pumps with two performance levels, the DHW preparation can be done using a compressor.

### Design built-under hot water cylinder



WWSP 229E

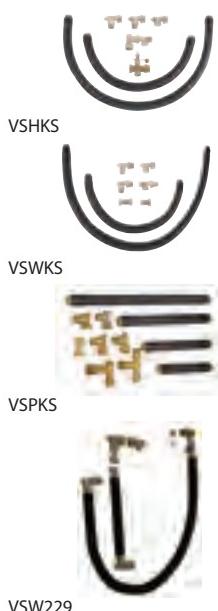
Nominal capacity 227 l, in brine-to-water heat pump design to enable space-saving installation on the built-under buffer, tube heat exchanger (internal), steel cylinder (special inside enamelling) with protection anode, polyurethane insulation with minimum stand-by losses; integrated temperature sensor for connection to the heat pump manager, colour: white, brown red design screen  
Permissible operating pressure 10 bar; Flange TK150/DN110 ;

| Order reference | Art.-Nr. | fr device type    | Usable capacity l | Heatex-changer surface area m <sup>2</sup> | Con-nection heating | Con-nection circula-tion | Con-nection hot water | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|-------------------|-------------------|--|---------------------|--------------------------|-----------------------|--------------------------|-----------|--|
| WWSP 229E       | 353380   | up to<br>SI(KH) 9 | 206               | 2.9  | 1¼                  | ¾                        | 1                     | 650x 1040 x 680          | 110       |  |

Recommended for service areas without shut-off times or with reduced hot water consumption.

Note: A minimum buffer volume of the heating system of 10% of the heating water flow must be ensured either by a buffer tank or other suitable measures!

### Compact brine-to-water heat pump connection set



| Order reference | Art.-Nr. | fr device type        | Shot text                                    | Features  |  |
|-----------------|----------|-----------------------|--|---|--|
| VSHKS           | 343110   | SIK(H)                | Heating connection set                       | Hose set for easy connection of the compact brine-to-water heat pump and built-under buffer tank to heating system (minimum distance from wall 20 cm). Consisting of four elbow unions with three manual air bleeds, buffer connection with filling and drain cocks and two corrugated stainless steel pipes with high-and-low temperature insulation. 1" internal thread connection to the heating system.       |  |
| VSWKS           | 343120   | VSHKS with WWSP       | Hot water expansion kit                      | Hot water extension hose kit, to enable the use of the heating connection kit (VSH KS) in addition to the hot water cylinder connection and a circulating pump. Consisting of 3 elbow unions with 2 manual air bleeds, 1 tee joint, pump shut-offs for the hot water circulating pump (pump not included in the scope of supply) and 2 corrugated stainless steel pipes with high-and-low temperature insulation. |  |
| VSPKS           | 348630   | VSHKS with PKS        | Tension hose kit for passive cooling station | Passive cooling station extension hose kit, to enable the use of the heating connection kit (VSH KS) in addition to the heating and brine circuit connection of the passive cooling station PKS 14, situated on the compact brine-to-water heat pump. Consisting of 2 elbow unions with manual air bleeds, crosspiece and 4 corrugated stainless steel pipes with high-and-low-temperature insulation.            |  |
| VSW229          | 356050   | SIK(H) with WWSP 229E | Connection set, hot water                    | Hose set for easy connection of the compact brine-to-water heat pump and the built-under hot water cylinder to the heating systems. Consisting of 2 corrugated stainless steel pipes with high-and-low temperature insulation, 2 elbow unions with manual air bleeds and an installation option for the hot water circulating pump (pump not included in the scope of supply).                                    |  |

## Brine-to-water heat pump in universal design

### Low-temperature brine-to-water heat pump

Max. flow temperature for heating 58 °C

Gassing colour white

#### Universal design



SISTE

Heat pump for indoor installation with integrated regulation WPM 2007 plus. The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). Variable connection options for brine and heating connections on the rear wall of the casing. Sound-optimised through insulated metal casing and double vibration-isolated compressor. Economiser for high coefficients of performance. Universal design with optional DHW preparation and the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Soft starter, load contactor for brine circulating pump, integrated flow and return flow sensor; external sensor (standard NTC-2) and dirt filter for brine circuit included in the scope of supply.

**Brine package and brine circuit manifold must be ordered separately.**

Lower operating limit heat source (heating operation) -5 °CUpper operating limit heat source (heating operation) 25°C;

Refrigerant R407CConnection heating 1 1/4 Heat source connection 1 1/4

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP B0/W35 | Connection voltage  | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|--|---------------------|--------------------------|-----------|--|
| SI5TE           | 352850   | 5.3/ 4.3 (4.1)                             | 3/N/PE~400 V, 50 Hz | 650x 805 x 462           | 109       |  |
| SI7TE           | 352860   | 6.9/ 4.3 (4.1)                             |                     |                          | 111       |  |
| SI9TE           | 352870   | 9.2/ 4.4 (4.2)                             |                     |                          | 118       |  |
| SI11TE          | 352880   | 11.8/ 4.4 (4.2)                            |                     |                          | 122       |  |
| SI14TE          | 352890   | 14.5/ 4.5 (4.3)                            |                     |                          | 130       |  |
| SI17TE          | 352900   | 17.1/ 4.6 (4.4)                            |                     |                          | 133       |  |

Heat output and COP according to EN255 (EN 14511) at B0/W35 (B0 = brine inlet temperature 0 °C, W35 = heating water outlet temperature +35 °C) .

### Low-temperature brine-to-water heat pump

Max. flow temperature for heating 58 °C

Gassing colour white

#### Universal design



SISME

Heat pump for indoor installation with integrated regulation WPM 2007 plus. The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). Variable connection options for brine and heating connections on the rear wall of the casing. Sound-optimised through insulated metal casing and double vibration-isolated compressor. Economiser for high coefficients of performance. Universal design with optional DHW preparation and the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Soft starter (from 9 kW), integrated flow and return sensor; external sensor (standard NTC-2), dirt filter for brine circuit included in the scope of supply.

**Brine package and brine circuit manifold must be ordered separately.**

Lower operating limit heat source (heating operation) -5 °CUpper operating limit heat source (heating operation) 25°C Refrigerant R407CConnection heating 1 1/4 Heat source connection 1 1/4

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP B0/W35 | Connection voltage  | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|--|---------------------|--------------------------|-----------|--|
| SI5ME           | 353010   | 5.0/ 4.0 (3.8)                             | 1/N/PE~230 V, 50 Hz | 650x 805 x 462           | 109       |  |
| SI7ME           | 353020   | 6.4/ 3.9 (3.7)                             |                     |                          | 111       |  |
| SI9ME           | 353030   | 9.3/ 4.0 (3.8)                             |                     |                          | 118       |  |
| SI11ME          | 353040   | 11.0/ 4.0 (3.9)                            |                     |                          | 122       |  |
| SI14ME          | 353050   | 15.0/ 4.1 (3.9)                            |                     |                          | 130       |  |

Heat output and COP according to EN255 (EN 14511) at B0/W35 (B0 = brine inlet temperature 0 °C, W35 = heating water outlet temperature +35 °C) .

## High-temperature brine-to-water heat pump

Max. flow temperature for heating 70°C

Casing colour white

### Universal design with high coefficients of performance

Heat pump for indoor installation with integrated regulation WPM 2007 plus. The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). Variable connection options for brine and heating connections on the rear wall of the casing. Sound-optimised through insulated metal casing and double vibration-isolated compressor. High COPs through economiser and compliance with the requirements of EN 14511 for larger volume flows on the heat consumption side. Universal design with optional DHW preparation and the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Integrated soft starter and load contactor for brine circulating pump, integrated flow and return flow sensors; external sensor (standard NTC-2) and dirt filter for brine circuit included in the scope of supply.

#### Brine package and brine circuit manifold must be ordered separately.

Lower operating limit heat source (heating operation) -5 °C Upper operating limit heat source (heating operation) 25°C; Refrigerant R134a Connection heating 1½ Heat source connection 1½.



SIH6TE

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP B0/W35 | Connection voltage  | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|---------------------|---------------------------|-----------|
| SIH6ME          | 355170   | 6.2/ 4.3 (4.1)                             | 1/N/PE~230 V, 50 Hz | 650x 805 x 462            | 118       |
| SIH9ME          | 355180   | 9.1/ 4.2 (4.0)                             |                     |                           | 130       |
| SIH11ME         | 355190   | 10.8/ 4.6 (4.5)                            |                     |                           | 133       |
| SIH6TE          | 355140   | 6.2/ 4.6 (4.5)                             |                     |                           | 118       |
| SIH9TE          | 355150   | 9.0/ 4.5 (4.4)                             |                     |                           | 130       |
| SIH11TE         | 355160   | 11.2/ 4.7 (4.5)                            |                     |                           | 133       |

Heat output and COP according to EN255 (EN 14511) at B0/W35 (B0 = brine inlet temperature 0°C, W35 = heating water outlet temperature +35°C).

The maximum flow temperatures (up to 70°C) are available for DHW preparation all year round, and allow DHW temperatures of up to 60°C to be achieved without electrical reheating using a flange heater.

## Brine-to-water heat pump connection kit



VSHBS

### Design built-under buffer tank



PSP100E

Nominal content 100 l; in brine-to-water heat pump design to enable space-saving installation on top of the built-under buffer tank; polyurethane insulation for minimal downtime losses (can be used for heating and cooling); 1½" bush for immersion heaters (up to CTHK 635); 1½" heating water connections; colour: white; brown red design screen.

| Order reference | Art.-Nr. | Short text              | for device type                | Width x Height x Depth mm | Weight kg |
|-----------------|----------|-------------------------|--------------------------------|---------------------------|-----------|
| PSP100E         | 353360   | Built-under buffer tank | SIK(H) 14 – 17<br>SI(H) 5 – 17 | 650x 550 x 653            | 54        |

## Design built-under hot water cylinder



WWSP 229E

Nominal capacity 227 l, in brine-to-water heat pump design to enable space-saving installation on the built-under buffer, tube heat exchanger (internal), steel cylinder (special inside enamelling) with protection anode, polyurethane insulation with minimum stand-by losses; integrated temperature sensor for connection to the heat pump manager, colour: white, brown red design screen

Permissible operating pressure 10 bar; Flange TK150/DN110 ;

| Order reference | Art.-Nr. | for device type | Usable capacity l | Heatex-changer surface area m² | Connection heating " | Connection circulation " | Connection hot water " | Width x Height x Depth mm | Weight kg |
|-----------------|----------|-----------------|-------------------|--------------------------------|----------------------|--------------------------|------------------------|---------------------------|-----------|
| WWSP 229E       | 353380   | up to SI(KH) 9  | 206               | 2.9                            | 1½                   | ¾                        | 1                      | 650x 1040 x 680           | 110       |

Recommended for service areas without shut-off times or with reduced hot water consumption.

Note: A minimum buffer volume of the heating system of 10% of the heating water flow must be ensured either by a buffer tank or other suitable measures!

## Low-temperature brine-to-water heat pump

Max. flow temperature for heating 58 °C

Gasing colour white

### Universal design



SI22TU

Heat pump for heating purposes for indoor installation with integrated WPM EconPlus. Variable connection options for brine and heating connections on the rear wall of the casing. Integrated solid-borne sound insulation for direct connection to the heating system. Sound-optimised through insulated metal casing and double vibration-isolated compressor. High COPs through economiser and compliance with the requirements of EN 14511 for larger volume flows on the heat consumption side. Sensor monitoring of the refrigerating circuit for high degree of operational safety; integrated thermal energy metering (display of the calculated thermal energy volume for heating and domestic hot water preparation on the WPM EconPlus heat pump manager). The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). Universal design with optional DHW preparation and the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Soft starter, load contactor for brine circulating pump, integrated flow and return flow sensor; external sensor (standard NTC-2) and dirt filter for brine circuit included in the scope of supply.

**Brine package and brine circuit manifold must be ordered separately.**

Lower operating limit heat source (heating operation) -5 °C Upper operating limit heat source (heating operation) 25°C;

Refrigerant R407C Connection heating 1½ Heat source connection 1½

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP B0/W35 | Connection voltage  | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|---------------------|---------------------------|-----------|
| SI22TU          | 362340   | 22.5/ 4.5 (4.4)                            | 3/N/PE~400 V, 50 Hz | 650x 845 x 665            | 185       |

Heat output and COP according to EN255 (EN 14511) at B0/W35 (B0 = brine inlet temperature 0 °C, W35 = heating water outlet temperature +35 °C).

## High-efficiency brine package for brine-to-water heat pump

### with one performance level



SZB:Breather



SZB: Expansion vessel

High-efficiency brine circuit accessory package consisting of a pre-assembled connection module (expansion vessel connection, quick-vent valve, 3 bar safety valve and pressure gauge) with cap valve that can be shut off for easy installation of the SWPR 200 low-pressure controller for the leakage monitoring of the brine circuit (available as special accessories), 18 litre / 0.5 bar admission pressure expansion vessel, ball valves, large-capacity breather with micro air bubble deposition and electronically-controlled brine pump with 0 – 10 V output signal (energy efficiency class A) for ground heat collectors according to the planning documentation (without brine circuit manifold and pipework). If the dimensions deviate or if borehole heat exchangers are used, the free compression must be checked.

| Order reference | Art.-Nr. | for device type | Circulating pump | Weight kg |
|-----------------|----------|-----------------|------------------|-----------|
| SZB220E         | 362840   | SI22TU          | Strabs 30/1-12   | 23        |

With borehole heat exchangers, the free compression values in the device information are to be adhered to (max. heat exchanger depth at DN 32: 80 m)!



SZB: Safety module



SZB:Breather

## Brine package for brine-to-water heat pump

### with one performance level

Brine accessory package for ground heat collectors consisting of premounted safety module, expansion vessel 18l/0.5 bar admission pressure, 1½" ball valves, large-capacity breather with micro air bubble deposition 1½" and brine circulating pump (without brine circuit manifold and pipework).

| Order reference | Art.-Nr. | for device type       | Circulating pump | Weight kg |
|-----------------|----------|-----------------------|------------------|-----------|
| SZB680          | 336680   | SI 5 / SIH 6 / SI 7   | Top-S 25/7.5     | 24        |
| SZB690          | 336690   | SI(H) 9, SI 11, SI 14 |                  |           |
| SZB700          | 336700   | SI17                  | Top-S 30/10      | 21        |
| SZB710          | 336710   | SI21                  | CHI4-20          | 25        |

phase out: SZB 710

With borehole heat exchangers, the free compression values in the device information are to be adhered to (max. heat exchanger depth at DN 32: 80 m)!



SYL 250

## Elasticated sound insulation strip

For solid-borne sound insulation of heat pumps for indoor installation and compensation of floor unevenness; strip-shaped support for the base frame; 12 mm thick (deformation approx. 1 mm); max. load 140 kg/RM; 2.5 m long (can be cut to appropriate length), colour green.

| Order reference | Art.-Nr. | Length mm | Width x Height mm | Weight kg |
|-----------------|----------|-----------|-------------------|-----------|
| SYL 250         | 352260   | 2500      | 30x 12            | 0.3       |

## Low-temperature brine-to-water heat pump

Max. flow temperature for heating 58 °C

Casing colour white

### Universal design with two performance levels

Heat pump for indoor installation with integrated regulation WPM 2007 plus. The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). Variable connection options for brine and heating connections on the rear wall of the casing. Access for service work from the front, no minimum clearances required on the sides. A sound-optimised insulated metal casing and integrated solid-borne sound insulation with free-swinging compressor base plate, make direct connection with the heating system possible. High COPs through economiser and compliance with the requirements of EN 14511 for larger volume flows on the heat consumption side. Universal design with optional DHW preparation and the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Integrated soft starter and load contactor for brine circulating pump, integrated flow and return flow sensors; external sensor (standard NTC-2) and dirt filter for brine circuit included in the scope of supply.

**Brine package and brine circuit manifold must be ordered separately.**

Lower operating limit heat source (heating operation) -5 °C Upper operating limit heat source (heating operation) 25°C;

Refrigerant R404A Connection voltage 3/N/PE-400 V, 50 Hz



SI24-37TE

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP B0/W35 | Heat output with 2 compressors / COP B0/W35 | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|---|---------------------------|-----------|
| SI24TE          | 352910   | 12.5/ 4.4 (4.3)                            | 24.0/ 4.3 (4.1)                             | 1000x 1440 x 775          | 282       |
| SI30TE          | 355640   | 14.4/ 4.2 (4.1)                            | 31.2/ 4.6 (4.3)                             |                           | 365       |
| SI37TE          | 352920   | 17.0/ 4.2 (4.4)                            | 37.2/ 4.6 (4.3)                             |                           | 371       |

Heat output and COP according to EN255 (EN 14511) at B0/W35 (B0 = brine inlet temperature 0 °C, W35 = heating water outlet temperature +35 °C).

## Design hot water cylinder



SI(HK) with WWSP 442E

Nominal content 400 l, in brine-to-water heat pump design, tube heat exchanger (internal), three supporting feet, steel cylinder (special inside enamelling) with protection anode, polyurethane insulation with minimal stand-by losses (approx. 2.7 kWh/24h), integrated temperature sensor for connection to the heat pump manager, colour white, brown red design screen.

Permissible operating pressure 10 bar; Flange TK150/DN110 ;

| Order reference | Art.-Nr. | for device type                         | Usable capacity l | Heat exchanger surface area m <sup>2</sup> | Connection heating " | Connection circulation " | Connection hot water " | Width x Height x Depth mm | Weight kg |
|-----------------|----------|---|-------------------|--|----------------------|--------------------------|------------------------|---------------------------|-----------|
| WWSP 442E       | 353370   | SIR – 14<br>SIKH 6 – 9<br>SI(H) 20 – 30 | 353               | 4.2  | 1 1/4                | 3/4                      | 1                      | 650x 1660 x 680           | 187       |

The reachable hot water temperatures are dependent on the maximum heat output of the heat pump, the heat exchanger area and the volume flow in the load circuit (the respective design for a maximum hot water temperature of 45 °C according to the project planning documentation). For heat pumps with two performance levels, the DHW preparation can be done using a compressor.

## Low-temperature brine-to-water heat pump

Max. flow temperature for heating 58°C

Gasing colour white

### Universal design with two performance levels



SI50-130TE

Heat pump for indoor installation with integrated regulation WPM 2007 plus. The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). Variable connection options for brine and heating connections on the rear wall of the casing. Access for servicing from the front, no minimum clearance required on the sides, accessible from underneath with a lift truck. A sound-optimised insulated metal casing and integrated solid-borne sound insulation with free-swinging compressor base plate, make direct connection with the heating system possible. High COPs through economiser and compliance with the requirements of EN 14511 for larger volume flows on the heat consumption side. Universal design with optional DHW preparation and the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Integrated soft starter and load contactor for brine circulating pump, integrated flow and return flow sensors; external sensor (standard NTC-2) and dirt filter for brine circuit included in the scope of supply.

#### Brine package must be ordered separately.

Lower operating limit heat source (heating operation) -5 °C Upper operating limit heat source (heating operation) 25°C; Refrigerant R404A Connection voltage 3/N/PE-400 V, 50 Hz

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP B0/W35 | Heat output with 2 compressors / COP B0/W35 | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|---|---------------------------|-----------|
| SI50TE          | 352930   | 23.0/ 4.4 (4.2)                            | 46.7/ 4.5 (4.3)                             | 1350x 1890 x 775          | 486       |
| SI75TE          | 352940   | 37.6/ 4.3 (4.1)                            | 75.2/ 4.4 (4.2)                             |                           | 571       |
| SI100TE         | 352950   | 48.4/ 4.6 (4.3)                            | 96.3/ 4.6 (4.4)                             |                           | 652       |
| SI130TE         | 352960   | 63.3/ 4.2 (4.1)                            | 125.8/ 4.3 (4.1)                            |                           | 860       |

Heat output and COP according to EN255 (EN 14511) at B0/W35 (B0 = brine inlet temperature 0°C, W35 = heating water outlet temperature +35°C). A water-to-water heat pump must be used if borehole heat exchangers are used which work using water as the heat transfer medium!

In combination with borehole heat exchangers, brine-to-water heat pumps can also be used for passive cooling. SI 30TE and SI 75TE are also available as reversible heat pumps for active cooling!

## High-temperature brine-to-water heat pumps

Max. flow temperature for heating 70°C

Gasing colour white

### Universal design with two performance levels



SIH20TE

Heat pump for indoor installation with integrated regulation WPM 2007 plus. The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). Variable connection options for brine and heating connections on the rear wall of the casing. Access for service work from the front, no minimum clearances required on the sides. A sound-optimised insulated metal casing and integrated solid-borne sound insulation with free-swinging compressor base plate, make direct connection with the heating system possible. High COPs through economiser and compliance with the requirements of EN 14511 for larger volume flows on the heat consumption side. Universal design with optional DHW preparation and the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Integrated soft starter and load contactor for brine circulating pump, integrated flow and return flow sensors; external sensor (standard NTC-2) and dirt filter for brine circuit included in the scope of supply.

#### Brine package must be ordered separately.

Lower operating limit heat source (heating operation) -5 °C Upper operating limit heat source (heating operation) 25°C; Refrigerant R134a Connection voltage 3/N/PE-400 V, 50 Hz

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP B0/W35 | Heat output with 2 compressors / COP B0/W35 | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|---|---------------------------|-----------|
| SIH20TE         | 352970   | 11.8/ 4.8 (4.6)                            | 21.8/ 4.7 (4.4)                             | 1000x 1660 x 775          | 307       |
| SIH40TE         | 352980   | 18.6/ 4.4 (4.1)                            | 36.6/ 4.4 (4.1)                             |                           | 502       |

Heat output and COP according to EN255 (EN 14511) at B0/W35 (B0 = brine inlet temperature 0°C, W35 = heating water outlet temperature +35°C). The maximum flow temperatures (up to 70°C) are available for DHW preparation all year round, and allow DHW temperatures of up to 60°C to be achieved without electrical reheating using a flange heater.



SIH40TE

## Connecting flange for heating and brine circuits

Coupling from the outer thread of the heat pump to a standard flange (DIN 2501).

| Order reference | Art.-Nr. | Connection heating " | Nominalwidth |
|-----------------|----------|----------------------|--------------|
| AF40            | 351900   | 1½                   | DN40         |
| AF50            | 351910   | 2                    | DN 50        |
| AF65            | 351920   | 2½                   | DN65         |
| AF80            | 351930   | 3                    | DN 80        |

AF 40 ... 80



## Brine package for brine-to-water heat pump

### with two performance levels



SZB:Breather



SZB: Expansion vessel

Brine accessory package for ground heat collectors consisting of membrane safety valve, large-capacity breather with micro air bubble deposition, low-noise brine circulating pump with flange connection, manometer, expansion vessel, cap valve, ball valves, couplings and seals.

| Order reference | Art.-Nr. | for device type   | Expansionvessel I | Lage-capacity breather " | Circulating pump |  |
|-----------------|----------|-------------------|-------------------|--------------------------|------------------|--|
| SZB250          | 352490   | SI21/24<br>SIH 20 | 18l               | 1½                       | Tp-S 40/10       |  |
| SZB300          | 355990   | SI30              |                   | 2                        |                  |  |

With borehole heat exchangers, the free compression values in the device information are to be adhered to (max. heat exchanger depth at DN 32: 80 m)!

## Brine package for brine-to-water heat pump

### Flange connection

Brine accessory package for ground heat collectors consisting of membrane safety valve, large-capacity breather with micro air bubble deposition and flange connection, low-noise brine circulating pump with flange connection, manometer, expansion vessel, cap valve, ball valves, couplings and seals.

| Order reference | Art.-Nr. | for device type | Expansionvessel I | Lage-capacity breather | Circulating pump |  |
|-----------------|----------|-----------------|-------------------|------------------------|------------------|--|
| SZB400          | 352500   | SI37 / SIH 40   | 18l               | DN50                   | Tp-S 40/10       |  |
| SZB500          | 352270   | SI50            | 25l               | DN65                   | Tp-S 50/10       |  |
| SZB750          | 352280   | SI75            | 35l               | DN80                   |                  |  |
| SZB1000         | 352290   | SI100           | 50l               | DN100                  | Tp-S 65/13       |  |
| SZB1300         | 352300   | SI130           |                   |                        | Tp-S 65/15       |  |

With borehole heat exchangers, the free compression values in the device information are to be adhered to (max. heat exchanger depth at DN 32: 80 m)!



SZB500

### Connection package brine manifold



AP SVT



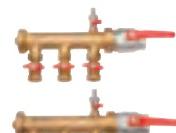
AP SVT 16

The AP SVT connection package makes the connection of a maximum of 8 circuits possible.

The AP SVT 16 connection package makes the connection of a maximum of 2 x 8 circuits possible using a tee joint.

| Order reference | Ait.-Nr. | Features   | Weight kg |  |
|-----------------|----------|--|-----------|--|
| APSVT           | 348900   | Contains two 1½" ball valves, two end caps with seals 2" and two filling and drain cocks; 1½" internal thread connection to the heat pump.   | 3         |  |
| APSVT16         | 356060   | Connection package brine manifold consisting of: 2 ball valves 2"; 2 tee joints 2"; 4 end caps with seals 2"; 4 filling and drain cocks; heat pump connections 2" internal thread. | 4         |  |

### Brine circuit manifold



SVT 300 with AP SVT



SVT 400

Brine manifold for ball valves (1" internal thread), brine collector (1" external thread), up to max. eight circuits can be screwed together (flat sealing), MS58 material.

**Connection package AP SVT up to max. eight circuits or AP SVT 16 up to max. 2 x 8 circuits must be ordered separately!**

| Order reference | Ait.-Nr. | Number of brine circuits | Heatsource connection " | length mm | Weight kg |  |
|-----------------|----------|--------------------------|-------------------------|-----------|-----------|--|
| SVT 200         | 348910   | 2                        | 2                       | 160       | 4.0       |  |
| SVT 300         | 348920   | 3                        |                         | 240       | 4.2       |  |
| SVT 400         | 348930   | 4                        |                         | 320       | 5.1       |  |

### Brine circuit low pressure controller



SWPR500

Pipe assembly 1½" internal thread/external thread with connecting plug for installation in the brine circuit. When pressure loss occurs in the brine circuit, a digital blocking signal is transmitted to the heat pump manager. The built-in type "PS3-W" pressure controller complies with the standard DIN 32 733 / EN 12 263 (type examination).

| Order reference | Ait.-Nr. | Heatsource connection " | Weight kg |  |
|-----------------|----------|-------------------------|-----------|--|
| SWPR500         | 337500   | 1½                      | 1.1       |  |
| SWPR200         | 359470   | ¾                       | 0.6       |  |

A brine low pressure controller is only necessary if required by the authorities!

### Brine circuit antifreeze



AFN825

Pure monoethylene glycol without anticorrosive for mixing with water, percentage of antifreeze 25 volume-% for frost protection down to -14 °C.

| Order reference | Ait.-Nr. | Nominal volume l | Weight kg |  |
|-----------------|----------|------------------|-----------|--|
| AFN825          | 328610   | 20               | 22        |  |
| AFN824          | 324610   | 200              | 220       |  |

## Water-to-water heat pump

### Water-to-water heat pump

#### with stainless steel coil heat exchanger



WI9-27TE

Heat pump for indoor installation with integrated regulation WPM 2007 plus. The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). Variable connection options for the ground water and heating connections on the rear wall of the casing. Sound-optimised through insulated metal casing and double vibration-isolated compressor. Economiser for high coefficients of performance. Integrated corrosion-proof and freeze-proof stainless steel coil heat exchanger. Universal design with optional DHW preparation and the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Integrated soft starter (from WI 14), integrated flow rate switch and load contactor for a well water pump; flow sensor, return flow sensor, external sensor (standard NTC-2) and dirt filter for ground water included in the scope of supply.

Lower operating limit heat source (heating operation) 7 °C Upper operating limit heat source (heating operation) 25°C Refrigerant R407C Connection heating 1 1/4 Heat source connection 1 1/4.

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP W10/W35 | Connection voltage  | Width x Height x Depth mm | Weight kg |
|-----------------|----------|---|---------------------|---------------------------|-----------|
| WI9ME           | 353340   | 8.3/ 5.1 (4.8)                              | 1/N/PE~230 V, 50 Hz | 650x 1445 x 575           | 156       |
| WI14ME          | 353350   | 13.6/ 5.0 (4.7)                             |                     |                           | 165       |
| WI9TE           | 353120   | 8.3/ 5.1 (4.9)                              |                     |                           | 156       |
| WI14TE          | 353130   | 13.6/ 5.2 (5.0)                             |                     |                           | 168       |
| WI18TE          | 353140   | 17.1/ 5.3 (5.2)                             |                     |                           | 187       |
| WI22TE          | 353150   | 21.5/ 5.5 (5.3)                             |                     |                           | 189       |
| WI27TE          | 353160   | 26.4/ 5.1 (4.9)                             |                     |                           | 259       |

Heat output and COP acc. to EN255 (EN 14511) at W10/W35 (W10 = ground water inlet temp. +10°C, W35 = heating water outlet temp. +35 °C).

#### Important information for coil heat exchangers:

at water temperatures below 13 °C, no water analysis with regard to corrosion is necessary.

#### Note for heat source systems:

If the limits for iron (Fe up to 0.2 mg/l) or manganese (Mn up to 0.1 mg/l) there is danger of ochre sedimentation of the heat source system. This is also true for coil heat exchangers.

### High-efficiency water-to-water heat pumps

Max. flow temperature for heating 58 °C

Casing colour white

#### with two performance levels



WI50TU

Water-to-water heat pump for indoor installation with integrated WPM EconPlus regulation and two compressors for output reduction when operating at partial load. Variable connection options for the water and heating connections on the rear wall of the casing. Access for service work from the front, no minimum clearances required on the sides. Sound-optimised through insulated metal casing and double vibration-isolated compressor. Integrated solid-borne sound insulation for direct connection to the heating system. High COPs through economiser, electronic expansion valve and compliance with the requirements of EN 14511 for larger volume flows on the heat consumption side. Sensor monitoring of the refrigerating circuit for high degree of operational safety; integrated thermal energy metering (display of the calculated thermal energy volume for heating and domestic hot water preparation on the WPM EconPlus heat pump manager). If the evaporation temperatures are too low (e. g. water flow too low) the heat pump switches off; no flow rate switch is necessary. A flow rate switch (available as a special accessory) can be installed for well systems with an uncertain water supply. The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). Universal design with the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- Distribution systems with unmixed and mixed heating circuits

Integrated soft starter, flow and return-flow sensors; external sensor (standard NTC-2) included in the scope of supply.



WI100TU

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP W10/W35 | Heat output with 2 compressors / COP W10/W35 | Width x Height x Depth mm | Weight kg |
|-----------------|----------|---|--|---------------------------|-----------|
| WI50TU          | 361650   | 26.3/ 6.3 (5.9)                             | 49.0/ 6.1 (5.7)                              | 1000x 1660 x 775          | 373       |
| WI100TU         | 361660   | 52.8/ 6.1 (5.8)                             | 98.5/ 5.6 (5.3)                              | 1350x 1890 x 775          | 593       |

Heat output and COP acc. to EN255 (EN 14511) at W10/W35 (W10 = ground water inlet temp. +10°C, W35 = heating water outlet temp. +35 °C).

A water-to-water heat pump must be used if borehole heat exchangers are used which work using water as the heat transfer medium!

**A ground water analysis for the copper-soldered stainless steel heat exchanger is mandatory (see the project planning documentation)!**

# Heat pump for heating purposes – ground water source

Package solutions for brine-to-water heat pumps for using ground water as a heat source

**Dimplex**

## Low-temperature brine-to-water heat pump package

Max. flow temperature for heating 60 °C

Gasing colour white

### Using ground water as a heat source



WSI...

The package solution for indirect use of water as a heat source with intermediate heat exchanger and brine-to-water heat pump (intermediate circuit with monoethylene glycol). To utilise water as a heat source in case of pollution and/or to expand the range of operating temperatures to also include lower temperatures when water temperatures vary and thereby increase the operational safety of the heat generator. Consisting of brine-to-water heat pump, WTE stainless steel plate heat exchanger, SZB brine circuit accessory package and a safety thermostat (RAT 0601 strap-on thermostat) in order to ensure that the heat exchanger does not freeze.

| Order reference | Ait.-Nr. | heatpump | Heatexchanger | Brinecircuit accessories | Heat output with 2 compressors / COP at B7/W35 | Weight kg |  |
|-----------------|----------|----------|---------------|--------------------------|--|-----------|--|
| WSI36TE         | 361540   | SI30TE   | WTE 30        | SZB300                   | 36/ 4.9  | 480       |  |
| WSI44TE         | 361550   | SI37TE   | WTE 37        | SZB400                   | 44/ 5.2  | 510       |  |
| WSI55TE         | 361560   | SI50TE   | WTE 50        | SZB500                   | 55/ 4.9  | 714       |  |
| WSI85TE         | 361570   | SI75TE   | WTE 75        | SZB750                   | 85/ 4.9  | 866       |  |
| WSI110TE        | 361580   | SI100TE  | WTE 100       | SZB1000                  | 113/ 5.1                                       | 963       |  |
| WSI150TE        | 361590   | SI130TE  | WTE 130       | SZB1300                  | 145/ 4.9                                       | 1266      |  |

The descriptions of the individual components can be found on the next previous pages!

Heat output and COP in accordance with EN 14511 at B7/W35 (B7 = brine inlet temperature 7 °C, W35 = heating water outlet temperature +35 °C).

#### Important information for stainless steel plate heat exchangers:

At water temperatures below 13 °C, no water analysis with regard to corrosion is necessary.

#### Note for heat source systems:

If the limit values for iron (Fe up to 0.2 mg/l) or manganese (Mn up to 0.1 mg/l) there is a danger of ochre sedimentation of the heat source system. This also applies to stainless steel heat exchangers. An online planner, which can be used to calculate the seasonal performance factor (including intermediate heat exchangers), is available at <http://www.dimplex.de/online-planer/wp-rechner/index.php?lang=en>

## Hgh-temperature brine-to-water heat pump package

Max. flow temperature for heating 70 °C

Gasing colour white

### Using ground water as a heat source



WSI...

The package solution for indirect use of water as a heat source with intermediate heat exchanger and brine-to-water heat pump (intermediate circuit with monoethylene glycol). To utilise water as a heat source in case of pollution and/or to expand the range of operating temperatures to also include lower temperatures when water temperatures vary and thereby increase the operational safety of the heat generator. Consisting of brine-to-water heat pump, WTE stainless steel plate heat exchanger, SZB brine circuit accessory package and a safety thermostat (RAT 0601 strap-on thermostat) in order to ensure that the heat exchanger does not freeze.

| Order reference | Ait.-Nr. | heatpump | Heatexchanger | Brinecircuit accessories | Heat output with 2 compressors / COP at B7/W35 | Weight kg |  |
|-----------------|----------|----------|---------------|--------------------------|--|-----------|--|
| WSIH26TE        | 361600   | SIH20TE  | WTE 20        | SZB250                   | 26/ 5.0  | 416       |  |
| WSIH44TE        | 361610   | SIH40TE  | WTE 40        | SZB400                   | 44/ 4.9  | 715       |  |

The descriptions of the individual components can be found on the next pages!

Heat output and COP in accordance with EN 14511 at B7/W35 (B7 = brine inlet temperature 7 °C, W35 = heating water outlet temperature +35 °C).

#### Important information for stainless steel plate heat exchangers:

At water temperatures below 13 °C, no water analysis with regard to corrosion is necessary.

#### Note for heat source systems:

If the limit values for iron (Fe up to 0.2 mg/l) or manganese (Mn up to 0.1 mg/l) there is a danger of ochre sedimentation of the heat source system. This also applies to stainless steel heat exchangers. An online planner, which can be used to calculate the seasonal performance factor (including intermediate heat exchangers), is available at [www.dimplex.de/betriebskostenrechner](http://www.dimplex.de/betriebskostenrechner).

## Reversible brine-to-water heat pump package

Max. flow temperature for heating 55 °C

Flow temperature cooling min. 8 °C

Gasing colour white

### Using ground water as a heat source



WSI...

The package solution for indirect use of water as a heat source with intermediate heat exchanger and brine-to-water heat pump (intermediate circuit with monoethylene glycol). To utilise water as a heat source in case of pollution and/or to expand the range of operating temperatures to also include lower temperatures when water temperatures vary and thereby increase the operational safety of the heat generator. Consisting of brine-to-water heat pump, WTE stainless steel plate heat exchanger, SZB brine circuit accessory package and a safety thermostat (RAT 0601 strap-on thermostat) in order to ensure that the heat exchanger does not freeze.

| Order reference | Ait.-Nr. | heatpump | Heatexchanger | Brinecircuit accessories | Heat output with 2 compressors / COP at B7/W35 | Weight kg |  |
|-----------------|----------|----------|---------------|--------------------------|--|-----------|--|
| WSI34TER+       | 361620   | SI30TER+ | WTE 30        | SZB300                   | 34/ 4.2  | 480       |  |
| WSI77TER+       | 361630   | SI75TER+ | WTE 75        | SZB750                   | 77/ 3.8  | 953       |  |

The descriptions of the individual components can be found on the next pages!

Heat output and COP in accordance with EN 14511 at B7/W35 (B7 = brine inlet temperature 7 °C, W35 = heating water outlet temperature +35 °C).

Cooling capacity in accordance with EN 14511 at B20/W10 (B20 = brine inlet temperature 20 °C, W10 = cooling water outlet temperature 10 °C).

The use of waste heat for DHW preparation produces high coefficients of performance in cooling operation!

#### Important information for stainless steel plate heat exchangers:

At water temperatures below 13 °C, no water analysis with regard to corrosion is necessary.

#### Note for heat source systems:

If the limit values for iron (Fe up to 0.2 mg/l) or manganese (Mn up to 0.1 mg/l) there is a danger of ochre sedimentation of the heat source system. This also applies to stainless steel heat exchangers.

## Special accessories for water heat source

### Plate heat exchanger for the use of polluted heat sources



WTE 20

Screwed stainless steel plate heat exchanger. Max. operating pressure 10 bar, max. temperature 80 °C. Intermediate heat exchanger for polluted heat sources or heat sources with poor water quality. Connection for the cold and warm side with external thread, exception: WTE 130 – connecting flange with rubber bushing.

| Order reference | Ait.-Nr. | fr device type | Heatsource connection " | Width x Height x Depth mm | Weight kg |
|-----------------|----------|----------------|-------------------------|---------------------------|-----------|
| WTE 20          | 358400   | SI2 / SIH 20   | 1½                      | 200x 748 x 270            | 74        |
| WTE 30          | 358410   | SI0            |                         | 200x 748 x 320            | 80        |
| WTE 37          | 358420   | SI7            |                         | 200x 748 x 420            | 87        |
| WTE 40          | 358430   | SI40TE         |                         | 300x 994 x 437            | 143       |
| WTE 50          | 358440   | SI0TE          | 2                       | 300x 994 x 537            | 147       |
| WTE 75          | 358450   | SI5            |                         | 300x 994 x 537            | 167       |
| WTE 100         | 358460   | SI00TE         | 2½                      | 395x 946 x 443            | 181       |
| WTE 130         | 358470   | SI30           |                         | 395x 946 x 443            | 284       |

Delivery time 3 – 4 weeks!

The general water quality requirements according to the project planning manual for welded stainless steel coil heat exchangers apply. If, due to the quality of the water, an intermediate heat exchanger is required, brine-to-water heat pumps are usually used, in order to expand the range of operating temperatures to include lower temperatures (intermediate circuit with monoethylene glycol). **General information:** The screw-fixed stainless steel/titanium plate heat exchangers can, due to customs regulations, only be distributed within the borders of the EU.

### Titanium plate heat exchanger

#### Heat source sea water



WTT ..

Screwed titanium plate heat exchanger for using corrosive heat sources (e.g. saline liquids such as sea water) in combination with brine-to-water heat pumps. Connecting flange for the cold and warm side with rubber bushing.

| Order reference | Ait.-Nr. | fr device type | Heatsource connection " | Width x Height x Depth mm | Weight kg |
|-----------------|----------|----------------|-------------------------|---------------------------|-----------|
| WTT 40          | 358480   | SI40TE         | 2½                      | 395x 946 x 443            | 223       |
| WTT 50          | 358490   | SI0TE          |                         |                           | 227       |
| WTT 75          | 358500   | SI5            |                         |                           | 234       |
| WTT 100         | 358510   | SI00TE         |                         |                           | 240       |

Delivery time 6 – 8 weeks!

**Note on the heat source system:**

When the limit values for iron (Fe up to 0.2 mg/l) or manganese (Mn up to 0.1 mg/l) are exceeded, the heat source system is in danger of iron ochre sedimentation. This is also true for titanium heat exchangers. **General information:** The screw-fixed stainless steel/titanium plate heat exchangers can, due to customs regulations, only be distributed within the borders of the EU.

## Passive cooling with brine-to-water or water-to-water heat pump

### Passive cooling station with cooling controller



PKS..

Module for passive cooling via borehole heat exchangers. Consisting of heat exchanger, brine circulating pump, temperature sensor, passive cooling controller; 3-way distribution valve with electrothermal actuator included in the scope of supply. Cooling operation mode is added to the existing heat pump manager by an electronic connection between the heating controller and the cooling controller (where the software versions of the heating controller and the cooling controller differ, a software update is necessary and must be bought from after-sales service). The components are permanently mounted in a white sheet metal casing, which can be mounted vertically or horizontally.

| Order reference | Art.-Nr. | for device type | Cooling capacity kW    | Features               | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|-----------------|------------------------|------------------------|--------------------------|-----------|--|
| PKS14           | 342460   | SI(H)<br>SIK(H) | 14                     | Changover valve: DN 25 | 650x 400 x 320           | 30        |  |
| PKS25           | 342470   |                 | 25                     | Changover valve: DN 40 |                          | 32        |  |
| PKS 14 Econ     | 362930   |                 | HPR - 11TEW<br>SI 22TU | 14                     |                          | 30        |  |
| PKS 25 Econ     | 362940   |                 | SI 30 - 75TER+         | 25                     |                          | 32        |  |

Transferrable cooling capacity at a brine inlet temperature of approx. 10°C and a cooling water inlet temperature of 20°C!

Start-up should be carried out by authorised after-sales service personnel, especially for heating and cooling equipment!

### Passive cooling controller



WRM PK



WPM Econ PK

Wall-mounted cooling controller with temperature sensors to record the flow and return temperatures. The passive cooling controller adds cooling operation mode to the existing heat pump manager (where the software versions of the heating controller and the cooling controller differ, a software update is necessary (subject to a charge)). Both controllers are operated within the network and control a combined system for heating and passive cooling with brine-to-water or water-to-water heat pumps. The cooling capacity is transferred via a heat exchanger not included in the scope of supply. This heat exchanger must be configured according to the cooling capacity to be transferred, the volume flow and the water quality.

| Order reference | Art.-Nr. | for device type           | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------------------|--------------------------|-----------|--|
| WRM PK          | 348190   | S8 - 130TE<br>WI 9 - 27TE | 370x 340 x 90            | 4         |  |
| WPM Econ PK     | 360000   |                           |                          |           |  |

Start-up (subject to charge) by the after-sales service is required!



WTU ...

### Plate heat exchanger, copper-soldered

Copper-soldered stainless steel plate heat exchanger. Max. operating pressure 25 bar, max. operating temperature 185 °C. As an intermediate heat exchanger for passive cooling. Connection for the cold and warm side with 2½" external thread.

| Order reference | Art.-Nr. | Volume flow primary m³/h | Volume flow secondary m³/h | Cooling capacity kW | Heatsource connection " | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|--------------------------|----------------------------|---------------------|-------------------------|--------------------------|-----------|--|
| WTU 50          | 362370   | 16.1                     | 14.3                       | 50                  | 2½                      | 238x 611 x 145           | 40        |  |
| WTU 75          | 362380   | 24.1                     | 21.4                       | 75                  |                         | 238x 611 x 201           | 63        |  |
| WTU 100         | 362390   | 32.2                     | 28.6                       | 100                 |                         | 238x 611 x 257           | 80        |  |
| WTU 130         | 362400   | 41.9                     | 37.1                       | 130                 |                         | 238x 611 x 341           | 110       |  |

Delivery time on request! Transferrable cooling capacity at a brine inlet temperature of approx. 10°C and a cooling water inlet temperature of 20°C!  
The general water quality requirements according to the project planning manual for copper-soldered stainless steel plate heat exchangers apply.

### Hydraulic passive cooling accessories



DWU..



ZWU..



ETS DWU

| Order reference | Art.-Nr. | Pressure drop      | Dimensions | Features  | Weight kg |  |
|-----------------|----------|--------------------|------------|---|-----------|--|
| DWU25           | 347760   | 14000a at 2,5m³/h  | DN25       | Change-over valve for switching the heat return flow in passive cooling operation.<br>Essential accessories: Actuator ETS DWU.  | 1.2       |  |
| DWU40           | 347770   | 14000a at 3,5 m³/h | DN40       |   | 2.1       |  |
| ZWU25           | 348940   | 14000a at 1,3 m³/h | DN25       | Two-way valve for blocking heat flow in passive cooling operation. Parallel cooling operation and DHW preparation is possible due to hydraulic separation of the cooling circuit.<br>Essential accessories: Actuator ETS DWU. | 0.7       |  |
| ZWU32           | 348950   | 14000a at 1,5 m³/h | DN32       |   | 1.1       |  |
| ETS DWU         | 347780   |                    |            | Electrothermal actuator for two-way valve and change-over valve. ~230V, 50 Hz, de-energised in heating operation, switching time approx. 3.5 min.   | 0.2       |  |

## Active cooling with brine-to-water heat pump

### Reversible brine-to-water heat pump

#### Optimised for cooling operation



SI11MER

Max. flow temperature for heating 58 °C

Flow temperature cooling min. 7 °C

Casing colour white

Heat pump for heating and cooling with integrated regulation installed indoors. Variable connection options for brine and heating connections on the rear wall of the casing. Access for servicing from the front, no minimum clearance required on the sides, accessible from underneath with a lift truck. A sound-optimised insulated metal casing and integrated solid-borne sound insulation with free-swinging compressor base plate, make direct connection with the heating system possible. High coefficients of performance due to compliance with EN 14511 for larger volume flows on the heat consumption side. Reversible refrigerating circuit with 2 performance levels. Universal design with the option of flexible expansion for:

- bivalent operation (bivalent-renewable not possible)
- combined distribution systems for heating and cooling
- unmixed and mixed heating and cooling circuits

Silent cooling via panel heating/cooling systems requires the use of the room climate control station (special accessory) to regulate the flow temperature on the basis of the air temperature and humidity of a reference room. Integrated soft starter and load contactor for brine circulating pump, integrated flow and return flow sensors; external sensor (standard NTC-2) and dirt filter for brine circuit included in the scope of supply.

Lower operating limit heat source (heating operation) -5 °C; Upper operating limit heat source (heating operation) 25 °C;

Lower operating limit heat source (cooling operation) 5 °C; Upper operating limit heat source (cooling operation) 25 °C;

Refrigerant R407C; Connection voltage 1/N/PE-230 V, 50 Hz

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP B0/W35 | Cooling capacity with 1 compressors / EER B20/W18 | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|---|---------------------------|-----------|
| SI 5MER         | 353070   | 4.8 / 3.9                                  | 6.4 / 5.3   | 650 x 805 x 462           | 115       |
| SI 7MER         | 353080   | 6.3 / 3.9                                  | 8.4 / 5.2   |                           | 117       |
| SI 9MER         | 353090   | 9.1 / 3.9                                  | 11.9 / 5.2  |                           | 124       |
| SI 11MER        | 353100   | 11.4 / 4.0                                 | 13.9 / 5.2  |                           | 128       |

Heat output and COP according to EN255 (EN 14511) at B0/W35 (B0 = brine inlet temperature 0 °C, W35 = heating water outlet temperature +35 °C). Cooling capacity and COP acc. to EN 255 at B20/W18 (B20 = brine inlet temp. 20 °C; W18 = cooling water outlet temp. 18 °C).

Start-up should be carried out by authorised after-sales service personnel, especially for heating and cooling equipment!

### Reversible brine-to-water heat pump

Max. flow temperature for heating 55 °C

Flow temperature cooling min. 7 °C

Casing colour white

#### Optimised for cooling with waste heat recovery



SI30TER+



SI75TER+

Heat pump for heating and cooling with integrated regulation installed indoors. The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). Variable connection options for brine and heating connections on the rear wall of the casing. Access for service work from the front, no minimum clearances required on the sides. A sound-optimised insulated metal casing and integrated solid-borne sound insulation with free-swinging compressor base plate, make direct connection with the heating system possible. High coefficients of performance due to compliance with EN 14511 for larger volume flows on the heat consumption side. Reversible refrigerating circuit with additional heat exchanger for higher DHW temperatures in heating operation and waste heat recovery in cooling operation. Universal design with the option of flexible expansion for:

- bivalent operation (bivalent-renewable not possible)
- combined distribution systems for heating and cooling
- unmixed and mixed heating and cooling circuits

Silent cooling via panel heating/cooling systems requires the use of the room climate control station (special accessory) to regulate the flow temperature on the basis of the air temperature and humidity of a reference room. Integrated soft starter and load contactor for brine circulating pump, integrated flow and return flow sensors; external sensor (standard NTC-2) and dirt filter for brine circuit included in the scope of supply.

Lower operating limit heat source (heating operation) -5 °C; Upper operating limit heat source (heating operation) 25 °C;

Lower operating limit heat source (cooling operation) 5 °C; Upper operating limit heat source (cooling operation) 30 °C;

Refrigerant R404A; Connection voltage 3/N/PE-400 V, 50 Hz

| Order reference | Art.-Nr. | Heat output with 1 compressor / COP B0/W35 | Heat output with 2 compressors / COP B0/W35 | Cooling capacity with 2 compressors / EER B20/W10 | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|---|---|---------------------------|-----------|
| SI30TER+        | 355650   | 15.4 / 4.2 (4.2)                           | 28.5 / 3.9 (3.8)                            | 35.3 / 5.3  | 1000x 1660 x 775          | 385       |
| SI75TER+        | 354480   | 34.0 / 3.9 (3.7)                           | 66.4 / 3.6 (3.4)                            | 75.5 / 4.5  | 1350x 1890 x 750          | 658       |

Heat output and COP according to EN255 (EN 14511) at B0/W35 (B0 = brine inlet temperature 0 °C, W35 = heating water outlet temperature +35 °C).

Cooling capacity and coefficient of performance according to EN 14511.

The use of waste heat for DHW preparation produces high coefficients of performance in cooling operation!

## Reversible brine-to-water heat pump

### Optimised for heating and cooling with waste heat reco-

Max. flow temperature for heating 58°C

Flow temperature cooling min. 7°C

Gasing colour white



SI130TUR+

Heat pump for heating and cooling with integrated regulation installed indoors. Variable connection options for brine and heating connections on the rear wall of the casing. Access for servicing from the front, no minimum clearance required on the sides, accessible from underneath with a lift truck. A sound-optimised insulated metal casing and integrated solid-borne sound insulation with free-swinging compressor base plate, make direct connection with the heating system possible. High coefficients of performance due to compliance with EN 14511 for larger volume flows on the heat consumption side. Optimised heating and cooling operation via an external four-way reversing valve which is activated by the controller (special accessory). Reversible refrigerating circuit with additional heat exchanger for higher DHW temperatures in heating operation and waste heat recovery in cooling operation. Sensor monitoring of the refrigerating circuit for high degree of operational safety; integrated thermal energy metering (display of the calculated thermal energy volume for heating and domestic hot water preparation on the WPM EconPlus heat pump manager). The control panel is integrated into a brown-red design screen and can also be used as wired remote control using the wall mounting set (special accessories MS PGD). Universal design with the option of flexible expansion for:

- Bivalent or bivalent-renewable operating mode
- combined distribution systems for heating and cooling
- unmixed and mixed heating and cooling circuits
- Combination of active and passive cooling (special accessory)

Silent cooling via panel heating/cooling systems requires the use of the room climate control station (special accessory) to regulate the flow temperature on the basis of the air temperature and humidity of a reference room. Soft starter, load contactor for brine circulating pump, integrated flow and return flow sensor; external sensor (standard NTC-2) and dirt filter for brine circuit included in the scope of supply.

Lower operating limit heat source (heating operation) -5 °CUpper operating limit heat source (heating operation) 25°C ;

Lower operating limit heat source (cooling operation) 10°C; Upper operating limit heat source (cooling operation) 30°C;

Refrigerant R410A Connection voltage 3/N/PE-400 V, 50 Hz

| Order reference | Ait.-Nr. | Heatoutput with 1 compressor / COP B0/W35 | Heat output with 2 compressors / COP B0/W35 | Cooling capacity with 2 compressors / EER B20/W9 | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|---|---|--|--------------------------|-----------|--|
| SI130TUR+       | 361770   | 57.6 / 4.5 (4.4)                          | 108.5 / 4.3 (4.2)                           | 129.0 / 5.6                                      | 1350x1890 x 775          | 830       |  |

Heat output and COP according to EN255 (EN 14511) at B0/W35 (B0 = brine inlet temperature 0°C, W35 = heating water outlet temperature +35°C). Cooling capacity and coefficient of performance according to EN 14511.

If borehole heat exchangers which use water as their heat transfer medium are used, a water-to-water heat pump must be installed!

The SI 130TUR+ is also available upon request in a WI 140TUR+ version, which works with water as the heat source.

The performance values stated can only be achieved in combination with the external four-way valve available as an accessory!

Delivery time on request!

## Four-way reversing valve, reversible brine to water heat pump

### Special hydraulic accessories for cooling



WWU 65

The four-way reversing valve (DN 65 flange or DN 80 flange) for integration into the heating flow allows optimised heating and cooling operation of the SI 130TUR+ reversible brine-to-water heat pump. Switching takes place via a pre-assembled electromotive actuator (1/N/PE ~230 V) which is activated by the WPM EconR heat pump manager.

| Order reference | Ait.-Nr. | for device type | Maximum volume flow m³/h | features  | Weight kg |  |
|-----------------|----------|-----------------|--------------------------|---|-----------|--|
| WWU 65          | 362760   | SI130TUR+       | 20                       | Four-way reversing valve for switching from heating to cooling operation in flow and/or return. Actuator, 3-point control signal, 1/N/PE ~230 V, 50 Hz for short switching times. | 15        |  |
| WWU 80          | 362770   |                 | 25                       |   | 23        |  |

## Flow switch for rev. SI 130TUR+ brine-to-water heat pump



DFS80

DN 80 external thread/external thread pipe assembly with flow switch (switch point at 6.5 m³/h ±10%) for SI 130TUR+ brine-to-water heat pumps. Can be used for flow rate monitoring in the heating circuit and in the brine circuit.

| Order reference | Ait.-Nr. | for device type | Connection heating " | Weight kg |  |
|-----------------|----------|-----------------|----------------------|-----------|--|
| DFS80           | 361840   | SI130TUR+       | 3                    | 3         |  |

## Special accessories cooling regulation



RKSWPM

### Room climate control station for temperature and humidity measurement

This accessory is essential for silent cooling using panel heating/cooling systems. Connection to a cooling controller to control the flow temperature based on the measured room temperature and humidity via a reference room.

| Order reference | Art.-Nr. | for device type | Width x Height x Depth mm | Weight kg |
|-----------------|----------|-----------------|---------------------------|-----------|
| RKSWPM          | 342220   | WPM             | 127x 80 x 30              | 0.2       |



TPWWPM

### Dew point monitor and dew point sensors

#### Dew point monitor

Switching relay for electronic evaluation of up to 5 connectable dew point sensors to interrupt cooling operation of the complete system in case of condensation at vulnerable points in the cooling distribution system; TPF 341 dew point sensors must be ordered separately; connection to the cooling controller; operating voltage 24 V~ / 50 Hz.

#### Dew point sensor

Flexible PCB which sends a signal to the dew point monitor (TPW WPM) when it comes into contact with moisture, connection cable (10 m, 2 x 0.25 mm<sup>2</sup>).

| Order reference | Art.-Nr. | Short text       | for device type | Width x Height x Depth mm |
|-----------------|----------|------------------|-----------------|---------------------------|
| TPWWPM          | 350970   | Dewpoint monitor | WPM             | 35x 86 x 60               |
| TPF341          | 350980   | Dewpoint sensor  | RTK 601U        | 38x 40                    |

When the dew point sensor comes into contact with condensation, the cooling of the system is interrupted!



TPF341



RTK 601U

### Heating/cooling ON/OFF room temperature controller

#### Room temperature controller

Electronic room temperature controller heating/cooling; switchable between "Heating" and "Cooling" operating modes using an external change-over contact of the heat pump manager; flat switch mounting frame for flush mounting as standard; can be installed in virtually all flat switch programs using an adapter element (50 x 50 mm according to DIN 49075) provided by the flat switch program manufacturer; switch ON / antifreeze; controlling range 5 to 30 °C; thermostat dial; temperature range limitation in the casing cover; operating voltage 24 V~ / 50 Hz; switching capacity 24 V AC ~1 A, can control up to 5 valve actuators (24 V~ closed when de-energised), IP30 when flush-mounted, colour alpine white (similar to RAL 9010). Dew point sensor TPF 341, for interrupting cooling operation when there is risk of condensate, optional connection (dew point sensors are not included in the scope of supply).

#### Dew point sensor

Flexible OCB, which sends a signal to the room temperature controller (RTK 601U) when it comes into contact with moisture, connection cable (10 m, 2 x 0.25 mm<sup>2</sup>).

| Order reference | Art.-Nr. | Short text                                 | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|---------------------------|-----------|
| RTK 601U        | 355610   | Roomtemperature controller heating/cooling | 82x 86 x 45               | 0.2       |
| TPF341          | 350980   | Dewpoint sensor                            | 38x 40                    | 0.1       |

When the dew point sensor comes into contact with condensation, the cooling of a room is interrupted by the motors attached to the room temperature controller.

Further room temperature controllers are listed in the chapter on control and regulation devices!

### Built-under buffer tank



PSP100E

| Order reference | Art.-Nr. | for device type               | Features   | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|-------------------------------|--|---------------------------|-----------|--|
| PSP100E         | 353360   | SIK(H) 7 – 14<br>SI(H) 5 – 17 | Nominal content 100 l; in brine-to-water heat pump design to enable space-saving installation on top of the built-under buffer tank; polyurethane insulation for minimal downtime losses (can be used for heating and cooling); 1½" bush for immersion heaters (up to CTHK 635); 1¼" heating water connections; colour: white; brown red design screen.    | 650x 550 x 653            | 54        |  |
| PSP140E         | 353970   | LI 11 – LI 20 ..(R)           | Nominal content 140 l; in air-to-water heat pump design to enable space-saving installation on top of the built-under buffer; polyurethane insulation with minimal downtime losses (can be used for heating and cooling), incl. 2 1½" bushes for immersion heaters (up to CTHK 636); 1" heating water connections; colour: white; brown red design screen. | 750x 600 x 880            | 72        |  |

### Floor-mounted buffer tank

Permissible operating pressure 3 bar; Max. operating temperature 95 °C;



PSW100



PSW200



PSW500

| Order reference | Art.-Nr. | for device type                             | Features  | Diameter x Height mm | Weight kg |  |
|-----------------|----------|---|---|----------------------|-----------|--|
| PSW100          | 351090   | up to LI 11<br>up to LA 11                  | Nominal content 100 l, polyurethane insulation for minimal downtime losses (can be used for heating and cooling), incl. 2 bushes 1½" for immersion heaters (to CTHK 634), heating water connections 1".   | 512 x 850            | 32        |  |
| PSW200          | 339830   | up to SI 37<br>up to WI 27                  | Nominal content 200 l, polyurethane insulation for minimal downtime losses (can be used for heating and cooling), incl. 3 bushes 1½" for immersion heaters (to CTHK 634), heating water connections 1¼", 3 supporting feet (adjustable).  | 600 x 1300           | 60        |  |
| PSW500          | 339210   | up to LA 60<br>up to SI 75<br>up to WI 50   | Universal buffer tank, nominal capacity 500 l, polyurethane insulation for minimal downtime losses (can be used for heating and cooling), incl. 3 bushes 1½" for immersion heaters (to CTHK 635), heating water connections 2½", flange DN 180 for installation of a RWT 500 ribbed tube heat exchanger.  | 700 x 1950           | 115       |  |
| PSW1000         | 361640   | up to SI 130<br>up to WI 100<br>up to LA 60 | Nominal volume 1000 litres, including six 1½" sleeves for immersion heaters (up to CTHK 636), three ½" immersion sleeves for temperature sensors, 2½" heating water connections and 3 supporting feet. Separate polyurethane insulation (100 mm insulation thickness) for low downtime losses, removable (can be used for heating), colour white aluminium (similar to RAL 9006); diameter (without insulation) 790 mm, tilting dimension (without insulation) 2018 mm. | 790 x 1970           | 112       |  |

To prevent condensate from forming on the buffer tank during cooling operation, the sleeves for the immersion heaters, the flange (handhole cover in the PSW 500) and all heating water connections must be insulated on site with an additional steam-resistant thermal insulation.

## Immersion heater



CTHK ...

For electrical supplementary heating in mono-energy operation; consisting of individual heating elements with temperature controller, safety temperature limiter, degree of protection IP 54, 1½" external thread with plastic cover, fulfils the requirements of EN 60335, Part 1. Not suitable for enamelled steel hot water cylinders.

| Order reference | Ait.-Nr. | Connection voltage  | Heatoutput kW | Immersion depth mm | Unheated length mm | Weight kg |  |
|-----------------|----------|---------------------|---------------|--------------------|--------------------|-----------|--|
| CTHK 630        | 363610   | 1/N/PE~230 V, 50 Hz | 4.5           | 400                | 95                 | 1.9       |  |
| CTHK 631        | 336180   |                     | 2.0           | 250                |                    | 1.4       |  |
| CTHK 632        | 335910   |                     | 2.9           |                    |                    | 1.5       |  |
| CTHK 633        | 322140   |                     | 4.5           | 350                |                    | 1.7       |  |
| CTHK 634        | 322150   |                     | 6 .0          | 450                | 110                | 1.8       |  |
| CTHK 635        | 322160   |                     | 7.5           | 550                |                    | 1.9       |  |
| CTHK 636        | 322170   |                     | 9 .0          | 650                |                    | 2.1       |  |

## Solar heat exchanger for universal buffer PSW 500



RWT 500

For connection of an external supplementary heating system with required system separation (e.g. solar) in connection with the PSW 500 universal buffer tank. Consisting of a flange cover with antitwist protection and 2.3 m<sup>2</sup> heat exchanger (for a solar collector area of up to approx. 10 m<sup>2</sup>), ¾" external thread connection, TK210/8.

| Order reference | Ait.-Nr. | fr device type | Connection heating " | Transmission capacity kW | Weight kg |  |
|-----------------|----------|----------------|----------------------|--------------------------|-----------|--|
| RWT 500         | 339840   | PSW500         | ¾                    | 9                        | 11.1      |  |

## Immersion heater pipe assembly



HDLR450

Insulated pipe assembly for screwing in a 1½" immersion heater (CTHK 631, CTHK 632, CTHK 633 or CTHK 634); integration into the heat flow for volume flows up to 2.5 m<sup>3</sup>/h; 1¼" heating water connection; installation material for wall mounting included in the scope of supply.

**Immersion heater (CTHK ...) must be ordered separately.**

| Order reference | Ait.-Nr. | fr device type | Weight kg |  |
|-----------------|----------|----------------|-----------|--|
| HDLR450         | 337450   | CTHK 631-634   | 5.0       |  |

## Pipe heater (radiator)



HCT 300

Insulated, built-in 3 kW radiator for heat flow (1" flat sealing), max. volume flow 1.5 m<sup>3</sup>/h, controlling range 20 – 75 °C, degree of protection IP44, safety temperature limiter, 16 A fuse.

| Order reference | Ait.-Nr. | Connection voltage  | Heatoutput kW | Weight kg |  |
|-----------------|----------|---------------------|---------------|-----------|--|
| HCT 300         | 351210   | 1/N/PE~230 V, 50 Hz | 3             | 3.5       |  |

## Hot water cylinders and accessories

### Hot water cylinder with foil cladding

#### and temperature sensor



WWSP 332

Steel cylinder (special inside enamelling) with protection anode and 3 supporting feet, polyurethane insulation with minimal stand-by losses, temperature sensor for connection to the heat pump manager included in the scope of supply, colour white, heating connection 1 1/4", hot water connection 1" external thread, circulation connection ".

Permissible operating pressure 10 bar; Flange TK150/DN110 ;

| Order reference | Art.-Nr. | for device type  | Features   | Diameter x Height mm | Weight kg |  |
|-----------------|----------|--|--|----------------------|-----------|--|
| WWSP 332        | 346610   | up to LI 20<br>excluding LI 16<br>up to LA 22 excluding<br>LA 16 / LA 22HS<br>up to SI 11<br>up to WI 14 | Nominal content 300l, usable capacity 277 l,<br>heat exchanger area 3,2 m <sup>2</sup> for a transmission<br>capacity up to approx. 16 kW, stand-by loss<br>approx. 2.4 kWh/24h  | 700 x 1294           | 130       |  |
| WWSP 880        | 337880   | up to LI 28<br>excluding LIH 26TE<br>up to LA 28<br>excluding LA 26HS<br>up to SI 30<br>up to WI 22      | Nominal content 400 l, usable capacity 350 l,<br>heat exchanger area 4.2 m <sup>2</sup> for a transmission<br>capacity up to approx. 20 kW, stand-by loss<br>approx. 2.8 kWh/24h | 700 x 1591           | 159       |  |
| WWSP 900        | 339220   | up to LI(H) 28<br>up to LA 28<br>up to SI 50<br>up to WI 50  | Nominal content 500 l, usable capacity 430 l,<br>heat exchanger area 5.7 m <sup>2</sup> for a transmission<br>capacity up to approx. 30 kW, stand-by loss<br>approx. 3.3 kWh/24h | 700 x 1920           | 180       |  |

The solar station SST 25 can be used to support DHW preparation for all hot water cylinders.

The reachable hot water temperatures are dependent on the maximum heat output of the heat pump, the heat exchanger area and the volume flow in the load circuit (the respective design for a maximum hot water temperature of 45 °C according to the project planning documentation). For heat pumps with two performance levels, the DHW preparation can be done using a compressor.

### Solar hot water cylinders

#### for heat pumps



WWSP 432 SOL

Solar domestic hot water cylinder made of steel (special enamelling inside) with protection anode, two internal bare-tube heat exchangers for solar and heating, thermometer, polyurethane insulation for minimal stand-by losses, colour white, TK150/DN110 flange. Permissible operating pressure 10 bar;

| Order reference | Art.-Nr. | for device type  | Features   | Diameter x Height mm | Weight kg |  |
|-----------------|----------|--|--|----------------------|-----------|--|
| WWSP 432 SOL    | 361080   | up to LI 20<br>excluding LI 16<br>up to LA 22 excluding<br>LA 16 / LA 22HS<br>up to SI 11<br>up to WI 14 | 400 l nominal volume, 346 l usable capacity,<br>3.2 m <sup>2</sup> heat exchanger area (heating),<br>1.3 m <sup>2</sup> heat exchanger area (solar), 2.9 kWh/<br>24h stand-by loss, 1 1/4" solar and heating<br>connections, 1" hot water connection,<br>3/4" circulation connection | 700 x 1631           | 182       |  |
| WWSP 540 SOL    | 361090   | up to LI 28<br>excluding LIH 26TE<br>up to LA 28<br>excluding LA 26HS<br>up to SI 30<br>up to WI 22      | 500 l nominal volume, 427 l usable capacity,<br>4.0 m <sup>2</sup> heat exchanger area (heating),<br>1.6 m <sup>2</sup> heat exchanger area (solar), 3.2 kWh/<br>24h stand-by loss, 1 1/4" solar and heating<br>connections, 1" hot water connection,<br>3/4" circulation connection | 700 x 1961           | 218       |  |

## Design hot water cylinder



WWSP 442E

Nominal content 400 l, in brine-to-water heat pump design, tube heat exchanger (internal), three supporting feet, steel cylinder (special inside enamelling) with protection anode, polyurethane insulation with minimal stand-by losses (approx. 2.7 kWh/24 h), integrated temperature sensor for connection to the heat pump manager, colour white, brown red design screen.

| Order reference | Art.-Nr. | for device type                         | Usable capacity l | Heat exchanger surface area m <sup>2</sup> | Connection heating " | Connection circulation " | Connection hot water " | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---|-------------------|--|----------------------|--------------------------|------------------------|---------------------------|-----------|--|
| WWSP 442E       | 353370   | SIR - 14<br>SIKH 6 - 9<br>SI(H) 20 - 30 | 353               | 4.2  | 1 1/4                | 3/4                      | 1                      | 650x1660x680              | 187       |  |

The reachable hot water temperatures are dependent on the maximum heat output of the heat pump, the heat exchanger area and the volume flow in the load circuit (the respective design for a maximum hot water temperature of 45 °C according to the project planning documentation). For heat pumps with two performance levels, the DHW preparation can be done using a compressor.

## Design built-under hot water cylinder



WWSP 229E

Nominal capacity 227 l, in brine-to-water heat pump design to enable space-saving installation on the built-under buffer, tube heat exchanger (internal), steel cylinder (special inside enamelling) with protection anode, polyurethane insulation with minimum stand-by losses; integrated temperature sensor for connection to the heat pump manager, colour: white, brown red design screen  
Permissible operating pressure 10 bar; Flange TK150/DN110 ;

| Order reference | Art.-Nr. | for device type   | Usable capacity l | Heatex-changer surface area m <sup>2</sup> | Connection heating " | Connection circulation " | Connection hot water " | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|-------------------|-------------------|--|----------------------|--------------------------|------------------------|---------------------------|-----------|--|
| WWSP 229E       | 353380   | up to<br>SI(KH) 9 | 206               | 2.9  | 1 1/4                | 3/4                      | 1                      | 650x1040x680              | 110       |  |

Recommended for service areas without shut-off times or with reduced hot water consumption.

Note: A minimum buffer volume of the heating system of 10% of the heating water flow must be ensured either by a buffer tank or other suitable measures!

## Flange heater for hot water cylinder



FLH60

For reheating and thermal disinfection; temperature controller adjustable from 30 °C to 80 °C; safety temperature limiter, can be used for all hot water cylinders (WWSP), installation depth 360 mm, 105 mm length unheated, diameter 185 mm;  
FLH 25M flange heater 2.5 kW, 230 V~;  
FLH 60 flange heater 6.0 kW, 400 V~;  
FLHU 70 flange heater reconnectable from 2.0 kW – 2.7 kW to 4.0 kW, 400 V~.

| Order reference | Art.-Nr. | Connection voltage  | Heatoutput kW | Range   |  |
|-----------------|----------|---------------------|---------------|---------|--|
| FLH25M          | 349430   | 1/N/PE~230 V, 50 Hz | 2.5           | TK150/8 |  |
| FLHU70          | 338070   | 3/N/PE~400 V, 50 Hz | 4.0           |         |  |
| FLH60           | 338060   |                     | 6.0           |         |  |

## Accessories for hot water cylinder



SVK852

| Order reference | Art.-Nr. | Short text                                    | Features   | Weight kg |  |
|-----------------|----------|---|--|-----------|--|
| SVK852          | 326660   | Safe valve combination                        | For the cold water connection of drinking water cylinders to the supply network according to DIN 1988; connection 1" external thread.                                  | 1.5       |  |
| KRR/ 003        | 322070   | thermostat for heating and domestic hot water | Capillary tube controller setting range: 0 – 70 °C switching capacity at 230 V, 50 Hz, 10 A switching temperature difference: 1.0 – 2.0 K, sheath tube length: 200 mm. | 0.5       |  |



KRR/ 003

## Hydro tower / combination tank

### Hydro tower with external heat pump manager

#### Compact installation for heating and domestic hot water preparation



HWK332

The hydro tower enables the fast and simple connection of a heat pump for heating purposes to a heating system with an unmixed heating circuit. The heat pump manager included in the scope of supply of the heat pump is used for the electronic control of the components (external wiring required). The following components are installed in a space-saving way and wired ready for use:

- Switchable pipe heater (2/4/6 kW)
- Buffer tank (100 l) with installation option for an additional immersion heater (up to CTHK 634).
- Hot water cylinder (300 l) with installation option for an additional heating element (flange heater).
- Electronically regulated circulating pump (energy-efficiency class A) pre-wired with coupling relay for an unmixed heating circuit (consumer circuit).
- Unregulated circulating pump integrated for the generator circuit and hot water circulating pump.
- The hydraulic isolation of the generator circuit and the consumer circuit is done via two differential pressureless manifolds (bypass pipes), which are each fitted with a check valve.

The unregulated circulating pump in the generator circuit is only operated when the compressor is running in order to reduce the runtimes. The uniform flow through the buffer tank connected in series extends the runtimes of the compressor and ensures the required heating water flow in all operating situations.

| Order reference | Ait.-Nr. | fr device type   | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|---------------------------|-----------|
| HWK332          | 362360   | LA 9 – 17TU, LA 11(T)AS, LA 20AS, LA 9 – 22PS<br>LI 9 / 11 / 20TE<br>SI(H) 5 – 11TE<br>WI 9 / 14TE | 710 x 1890x 950           | 210       |

If the heating water connection lines are more than 10 m long, the free compression values stated in the device information must be observed (minimum pipe diameter for volume flows of more than 1.5 m<sup>3</sup>/h: DN 32)!

### Combination tank for heating and DHW preparation



PWS332

Floor-mounted cylinder for optimum use of floor space, consisting of a 100 l buffer tank and a 300 l hot water cylinder. Tank and cylinder hydraulically decoupled; buffer tank with bush 1½" for immersion heaters (to CTHK 635), heating connection 1¼"; hot water cylinder usable capacity 277 l, heat exchanger area 3.2 m<sup>2</sup> smooth pipe (special inside enamelling), heating connection 1¼", hot water connection 1", circulation connection ¾", temperature sensor enclosed, installation of flange heater possible; colour aluminium white.

| Order reference | Ait.-Nr. | fr device type  | Diameter mm | Height mm | Weight kg |
|-----------------|----------|---|-------------|-----------|-----------|
| PWS332          | 348620   | up to LI 11<br>up to LA 12<br>up to SI(H) 11<br>up to WI 14 | 700         | 1800      | 185       |

### Radiators for the combination tank PWS 332



CTHK ...

| Order reference | Ait.-Nr. | Short text                           | Connection voltage  | Heatoutput kW | Weight kg |
|-----------------|----------|--------------------------------------|---------------------|---------------|-----------|
| CTHK 635        | 322160   | TEK 635 immersion heater, 7.5 kW     | 3/N/PE~400 V, 50 Hz | 7.5           | 1.9       |
| FLH60           | 338060   | flange heater for domestic hot water |                     | 6.0           | 3.5       |

All of the following immersion heaters can be used to supplement the heating: CTHK 631, 632, 633 and 634.



FLH60

## Heat pump/solar combo tank



PWD750

### Combo tank for the integration of solar energy

#### DHW heating in flow principle

Floor-mounted cylinder for heating and domestic hot water preparation with central flow, with three internally tin-plated heat exchangers (external pipework necessary); consisting of a buffer tank for heating and a buffer tank for DHW; heating buffer tank used as a pre-heating stage for DHW preparation. A circular plate prevents the different water layers with varying temperatures from becoming mixed together; integrated heat riser pipes distribute the energy from an additional heat generator (e.g. solar, wood boiler) to the supplementary heating system and the domestic hot water preparation according to the temperature (flange connection for integration of the RWT 750 solar heat exchanger); 125 mm PE foam insulation delivered separately; colour: white.

##### PWD 750 combo tank:

200 l buffer tank for heating and 550 l buffer tank for DHW; one 1½" sleeve each for immersion heaters in the heating buffer tank and the DHW buffer tank (CTHK 635 and 636); tank charging for DHW preparation up to a maximum of 2.5 m³/h and 30 kW heat output; tilting dimension 1920 mm. The VS PWD special accessory is available for the external pipework required by the PWD 750.

##### PWD 900 combo tank:

250 l buffer tank for heating and 650 l buffer tank for DHW; 1½" sleeves for immersion heaters (two in the heating buffer tank and one in the DHW buffer tank – CTHK 635 and 636); tank charging for DHW preparation up to a maximum of 3.0 m³/h and 40 kW heat output; tilting dimension 2205 mm.

##### PWD 1250 combo tank:

400 l buffer tank for heating and 850 l buffer tank for DHW; 1½" sleeves for immersion heaters (two in the heating buffer tank and one in the DHW buffer tank – CTHK 635 and 636); tank charging for DHW preparation up to a maximum of 3.5 m³/h and 60 kW heat output; tilting dimension 2,200 mm.

#### Observe the basic dimensions of the PWD 1250: Tank diameter 1000 mm (without insulation)!

| Order reference | Art.-Nr. | for device type   | Diameter with insulation mm | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---|-----------------------------|---------------------------|-----------|--|
| PWD750          | 349100   | up to heat output max. 30 kW<br>up to water flow rate max. 2,5 m³/h | 1040                        | 790x1730x790              | 246       |  |
| PWD900          | 362860   | up to heat output max. 40 kW<br>up to water flow rate max. 3,0 m³/h |                             | 790x2050x790              | 296       |  |
| PWD1250         | 362890   | up to heat output max. 60 kW<br>up to water flow rate max. 3,5 m³/h | 1200                        | 1000x1950x1000            | 407       |  |

PWD 900 and PWD 1250: Delivery time on request!

Cannot be used for reversible heat pumps and water hardness above 14° dH! Dimensional specifications for width, height and depth refer to the cylinder without insulation.

### Connection kit for PWD 750 heat exchanger



VSPWD

For easy installation of pipework for the 3 integrated hot water heat exchangers of the PWD 750. Consisting of two DN16 (1000 / 500 mm) ready-to-use flexible stainless steel corrugated pipes, 13 mm insulation thickness, ¾" cap nut and seal on both sides; maximum operating pressure 7 bar.

| Order reference | Art.-Nr. | for device type | Weight kg |  |
|-----------------|----------|-----------------|-----------|--|
| VSPWD           | 354030   | PWD             | 5         |  |

### Immersion heater for PWD combo tank



CTHK ...

For the combination tank PWD 750, immersion heaters with an unheated length of 110 mm are used to support heating and DHW preparation.

| Order reference | Art.-Nr. | Connection voltage  | Heatoutput kW | Immersion depth mm | Unheated length mm | Weight kg |  |
|-----------------|----------|---------------------|---------------|--------------------|--------------------|-----------|--|
| CTHK 635        | 322160   | 3/N/PE~400 V, 50 Hz | 7.5           | 550                | 110                | 1.9       |  |
| CTHK 636        | 322170   |                     | 9.0           | 650                |                    | 2.1       |  |

### Reversing valve for PWD combo tank



DWUS25

Change-over valve for switching from heating to DHW preparation in flow and/or return flow. Motor operated for short switching times (set time open 12s, set time closed 6s); for a maximum volume flow of 2 m³/h; max. differential pressure 0.6; range of operating temperatures for heating water 5-88 °C; max. ambient temperature 50 °C.

| Order reference | Art.-Nr. | Connection heating " | Nominalwidth |  |
|-----------------|----------|----------------------|--------------|--|
| DWUS25          | 355630   | 1                    | DN 25        |  |

### Solar heat exchanger for PWD combo tank



RWT 750

For connection of an external supplementary heating and domestic water system with required system separation (e.g. solar) in connection with the PWD 750 combo tank. Consisting of a flange cover with antitwist protection and 2.3 m² heat exchanger (for a solar collector area of up to approx. 15m²).

| Order reference | Art.-Nr. | for device type              | Connection heating " | Transmission capacity kW | Weight kg |  |
|-----------------|----------|------------------------------|----------------------|--------------------------|-----------|--|
| RWT 750         | 351640   | PWD50<br>PWD 900<br>PWD 1250 | ¾                    | 9                        | 10        |  |

### Module for connecting the buffer tank and ensuring the heating water flow



KPV with UP 60

#### Compact manifold

Combinable module with insulation jackets for installation-friendly connection of the heat pump, buffer tank, hot water cylinder and hot water distribution system. Consisting of one overflow valve, four ball valves, two integrated thermometers, one check valve, immersion sleeve for return flow sensor, safety module with pressure gauge and connection possibilities for expansion vessel. Installation option for circulating pump, inside micrometer 180 mm, DN 25 (pump not included in the scope of supply). Recommended for connection of heat pumps with a heating water flow of up to 1.3 m<sup>3</sup>/h in combination with the extension module EB KPV to 2.0 m<sup>3</sup>/h (max. volume flow 2.5 m<sup>3</sup>/h). The extension module should generally be used for systems with different volume flows in the generator and consumer circuits (i.e. radiators).

#### Extension module

For connecting to the KPV 25 compact distributor, enabling decoupling from the consumer circuit without differential pressure. Consisting of a corrugated stainless steel pipe with union and connecting pieces. Recommended for connection of heat pumps with a heating water flow of up to 2.0 m<sup>3</sup>/h. The consumer circuit requires a separate circulating pump due to the hydraulic isolation.

#### Dual differential pressureless manifold

Combinable module with insulation jackets for installation-friendly connection of the heat pump, buffer tank, hot water cylinder (using the tee joint included) and heating system. Consisting of 2 stop-cocks, 2 bypass pipes with return flow inhibitor (2000 Pa start-to-leak pressure), safety module with pressure gauge and connection option for an expansion vessel. Installation option for a circulating pump (pump not included in the scope of supply) with 1" internal thread pipe unions (DN 25) for DDV 25 and 1 1/4" internal thread pipe unions (DN 32) for DDV 32.

Recommended for connecting heat pumps with a heating water flow rate of up to 2.0 m<sup>3</sup>/h (DDV 25) or 2.5 m<sup>3</sup>/h (DDV 32) and external energy infeed (e.g. wood / solar) into the buffer tank connected in series (see project planning documentation). To reduce the pump operating times, the heat circulating pump can only be used with the compressor. In this case, the return flow sensor included in the scope of supply must be installed in the immersion sleeve provided, and connected. The consumer circuit requires a separate circulating pump due to the hydraulic isolation.



EBKPV



DDV..

| Order reference | Ait.-Nr. | for device type  | Short text                              | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|--|---|---------------------------|-----------|--|
| KPV25           | 346590   | up to LI 11<br>up to LA 11<br>up to SI 17<br>up to WI 18                         | compact manifold with overflow valve    | 250x 500 x 250            | 7.7       |  |
| EBKPV           | 348650   | up to LI/LA 22 with KPV 25<br>up to SI 21 with KPV 25<br>up to WI 22 with KPV 25 | KPV extension module                    | 190x 180 x 180            | 2.4       |  |
| DDV25           | 358390   | up to LI/LA 20<br>up to LA 20<br>up to SI 21 / SIH 20<br>up to WI 22             | Dual differential pressureless manifold | 340x 540 x 275            | 11.2      |  |
| DDV32           | 348450   | up to LI(H) 28<br>up to LA 28<br>up to SI 24<br>up to WI 27                      |   |                           | 12.2      |  |

### Circulating pumps for main heat pump circuit



UP80

Unregulated heat circulating pump to ensure minimum heating water flow through the heat pump, inside micrometer 180 mm. In connection with KPV 25 and EB KPV or a DDV 25, the UP 60 can be used up to LI/LA 20, SI 22 and WI 22.

The circulating pump UP 70-32 ensures the minimum heating water flow in connection with DDV 32 to LI/LA 28, SI 24 and WI 27.

| Order reference | Ait.-Nr. | for device type | Nominalwidth | features  | Weight kg |  |
|-----------------|----------|-----------------|--------------|---|-----------|--|
| UP60            | 340300   | KPV25<br>DDV 25 | DN25         | Delivery height max. 3.5 m at a volume flow of 2 m <sup>3</sup> /h. | 2.4       |  |
| UP80            | 340310   |                 |              | Delivery height max. 4 m at a volume flow of 5 m <sup>3</sup> /h.   | 4.5       |  |
| UP60-32         | 355970   | DDV32           | DN32         | Delivery height max. 3.5 m at a volume flow of 2 m <sup>3</sup> /h. | 2.6       |  |
| UP70-32         | 354020   |                 |              | Delivery height max. 4 m at a volume flow of 5 m <sup>3</sup> /h.   | 5.0       |  |

Pump dimensioning must be checked according to the pressure drop and volume flow!

## Electronic circulating pump for consumer circuit



UPE60

### Electronically controlled circulating pump UPE 60

Electronically-controlled heat circulating pump with integrated flexible capacity via freely-adjustable rotational speed, micrometer 180 mm, low energy consumption thanks to energy efficiency class A (fulfils the requirements of EnEV, §14 (3)), automatic lowering of temperature at night, type of regulation (controlled or constant rotational speed) and the control curve can be set automatically via Softtouch, including pump plug for easy installation of the electrical connection cable.

### Electronically controlled circulating pumps UPE 70, UPE 80, UPE 120

High-efficiency wet running pump with integrated electronic power regulation. Types of regulation selectable via operating button for optimum load adjustment (differential pressure regulation constant ( $\Delta p$ -c) or variable ( $\Delta p$ -v) and speed adjustment via control input). Low energy consumption thanks to energy efficiency class A (complies with the requirements of the EnEV, §14 (3)), inside micrometer 180 mm, including mains and control cable (length 1.5 m). Relay for decoupling the control and load circuits, including relay base and retaining clip in the scope of supply.

| Order reference | Ait.-Nr. | Nominalwidth | Features  | Weight kg |
|-----------------|----------|--------------|---|-----------|
| UPE60           | 358870   | 25           | Maximum delivery height 3.2 m at a volume flow of 2 m <sup>3</sup> /h | 2.3       |
| UPE70-25        | 362790   |              |   | 2.8       |
| UPE70-32        | 362800   | 32           | Maximum delivery height 5.9 m at a volume flow of 2 m <sup>3</sup> /h | 3.0       |
| UPE80-25        | 362810   | 25           | Maximum delivery height 5.2 m at a volume flow of 5 m <sup>3</sup> /h | 4.2       |
| UPE80-32        | 362820   | 32           | Maximum delivery height 8.5 m at a volume flow of 7 m <sup>3</sup> /h | 6.5       |
| UPE120-32       | 362830   |              |   |           |

The use of an electronically-regulated circulating pump in the consumer circuit requires a manifold without differential pressure. An unregulated circulating pump must be used in the main heat pump circuit in order to ensure the minimum heating water flow rate.

Pump dimensioning must be checked according to the pressure drop and volume flow!

## Heating distribution system modules



WWM 25 with UP ...

### Unmixed heating circuit module

Combinable module with insulation jackets for connecting an unmixed heating circuit or DHW or swimming pool water preparation. Can be used for a heating water flow rate of up to 2.5 m<sup>3</sup>/h. Consisting of two ball valves with check valve, two integrated thermometers, pump ball valve, insulation jackets, installation option for circulating pump, inside micrometer 180 mm, DN 25 (pump not included in the scope of supply).

### Mixed heating circuit module

Combinable module with insulation jackets for connecting a mixed heating circuit. Can be used for a heating water flow rate of up to 2 m<sup>3</sup>/h. Consisting of two ball valves with check valve, two thermometers, 3-way mixer with actuator and 140 sec. runtime, connection voltage ~230 V, degree of protection IP40, strap-on sensor and insulation jackets, installation option for regulated circulating pump, inside micrometer 180 mm, DN 25, which is to be constructed after pressure loss of the heating system (pump not included in the scope of supply).

### Manifold bar

Combinable module with insulation jackets for simultaneous connection of several heating distribution system modules, with two 1½" (external/internal thread) connecting pairs each to the top and bottom, universally combinable with KPV 25, MMH 25 and WWM 25, complete with union and connecting pieces (flat sealing).



MMH 25 with UP ...

| Order reference | Ait.-Nr. | Short text   | Width x Height x Depth mm | Weight kg |
|-----------------|----------|--|---------------------------|-----------|
| WWM 25          | 346600   | Hotwater module / unmixed heating circuit module     | 245x 420 x 240            | 3.9       |
| MMH25           | 348640   | Mixed heating circuit module with temperature sensor | 250x 420 x 250            | 5.0       |
| VTB 25          | 339870   | Manifold bar   | 500x 180 x 135            | 7.1       |

If the hot water distribution system is used for heating and cooling, the water-bearing pipes must have a low-temperature insulation within the insulation jackets. With reversible heat pumps with additional heat exchanger no manifold bar is necessary for the connection of the DHW preparation!



VTB 25

## Domestic hot water preparation distribution system modules



WWM 25 with UP ..



VTB 25

### Hot water module

Combinable module with insulation jackets for connecting DHW or swimming pool water preparation. Can be used for a heating water flow rate of up to 2.5 m<sup>3</sup>/h. Consisting of two ball valves with check valve, two integrated thermometers, pump ball valve, insulation jackets, installation option for circulating pump, inside micrometer 180 mm, DN 25, which is to be constructed after pressure loss of the heating system (not included in the scope of supply).

### Manifold bar

Combinable module with insulation jackets for connecting to a KPV 25 compact manifold and WWM 25 hot water module. Each with two connecting pairs 1 1/2" (external thread/internal thread) upwards and downwards, useable for a hot water flow of up to max. 2.5 m<sup>3</sup>/h (flat sealing).

| Order reference | Ait.-Nr. | Short text  | Wdth x Height x Depth mm | Weight kg |
|-----------------|----------|---|--------------------------|-----------|
| WWM 25          | 346600   | Hot water module / unmixed heating circuit module | 245x 420 x 240           | 3.9       |
| VTB 25          | 339870   | Manifold bar                                      | 500x 180 x 135           | 7.1       |

## Hot water pump unit



WPG32

Pump unit for direct mounting of the hot water circulating pump on the rear of the hot water cylinder (pump not included in the scope of supply). Consisting of: Elbow union with manual bleeders, installation option for DN 25 circulating pump with two ball valves and gravity control. Extra WPG 32:1 1/4" elbow union with drainage for hot water return.

| Order reference | Ait.-Nr. | for device type     | Connection heating " | Weight kg |
|-----------------|----------|---------------------|----------------------|-----------|
| WPG25           | 356030   | UP80<br>UP 80       | 1 1/4                | 1.9       |
| WPG32           | 356040   | UP80-32<br>UP 70-32 | 1 1/2                | 4.4       |

## Circulating pumps for DHW preparation



UP80

Unregulated circulating pump, applicable for the hot water load circuit, inner micrometer 180 mm.

| Order reference | Ait.-Nr. | Nominalwidth | Features  | Weight kg |
|-----------------|----------|--------------|---|-----------|
| UP60            | 340300   | DN25         |   | 2.4       |
| UP60-32         | 355970   | DN32         | Delivery height max. 3.5 m at a volume flow of 2 m <sup>3</sup> /h. | 2.6       |
| UP80            | 340310   | DN 25        | Delivery height max. 4 m at a volume flow of 5 m <sup>3</sup> /h.   | 4.5       |

The reachable hot water temperatures are dependent on the maximum heat output of the heat pump, the heat exchanger area and the volume flow in the load circuit (the respective design for a maximum hot water temperature of 45 °C according to the project planning documentation). For heat pumps with two performance levels, the DHW preparation can be done using a compressor.



MMB25

## Mixer module for bivalent systems

Combinable mixer module for connecting a second heat generator (e.g. oil boiler) or a renewable heat generator with heat accumulator. Can be used for a heating water flow rate of up to 2 m<sup>3</sup>/h. Consisting of a 4-way mixer with actuator and 140 sec. runtime, connection voltage ~230 V, degree of protection IP40.

| Order reference | Ait.-Nr. | Wdth x Height x Depth mm | Weight kg |
|-----------------|----------|--------------------------|-----------|
| MMB25           | 348880   | 190x 365 x 160           | 5.3       |

## Solar station for hot water

### Solar back-up for domestic hot water preparation



SST25

Heat exchanger solar station consisting of solar separation system and pump assembly with insulation jackets for integrating solar installations up to 10 m<sup>2</sup> into the DHW heating system. The solar station enables efficient hot water heating via the heat pump as well as via the solar installation. Modules with primary and secondary cycle consisting of: 2 circulating pumps (WILO- STAR-ST 25/6 and STAR-RS 24/4); 4 ball valves 1" with thermometer, return flow inhibitor, safety assembly with safety valve and 0-10 bar pressure gauge, connection options for expansion vessel (solar controller not included in scope of supply).

| Order reference | Ait.-Nr. | Wdth x Height x Depth mm | Weight kg |
|-----------------|----------|--------------------------|-----------|
| SST25           | 348430   | 320x 1050 x 320          | 19        |



SMF..

## Dirt traps

Dirt trap for installation into the heating circuit, suitable for all non-corrosive substances up to 150°C. To protect the heat pump against damage caused by impurities and thus extend its service life. Mesh size 0.6 mm.

| Order reference | Ait.-Nr. | for device type  | Connection heating " | Weight kg |
|-----------------|----------|--|----------------------|-----------|
| SMF25           | 362130   | LA 8 – LA 16AS(R)/PS<br>LI(K)8 – 9TE(L)                              | 1                    | 1.0       |
| SMF32           | 362140   | LA 7 – 28PS/AS/HS<br>LI 11 – 28TE(R+)<br>SI(K/H) 5 – 21<br>WI 9 – 27 | 1¼                   | 1.2       |
| SMF40           | 362150   | LA 40AS<br>SI(H) 40 – 50TE<br>WI 50TU                                | 1½                   | 1.5       |
| SMF50           | 362160   | SI 5 – 100TE(R+)<br>WI 100TU   | 2                    | 2.3       |
| SMF65           | 362170   | SI 30TE  | 2½                   | 3.7       |



KOMP ..

## Expansion joints

Double-sphere rubber expansion joint for isolating heat pumps and heating systems. Absorbs oscillations and movements caused by pumps, compressors, fittings and other sources, reduces noise output and evens out internal strain (axial and lateral deviations) stemming from imprecisions in assembly. EPDM bellows, galvanised C-steel internal thread connections, service temperature -10°C to 110°C.

| Order reference | Ait.-Nr. | for device type  | Connection heating " | Weight kg |
|-----------------|----------|--|----------------------|-----------|
| KOMP 25         | 362050   | LA 8 – 16AS(R)/PS<br>LI(K) 8 – 9TE(L)  | 1                    | 2.0       |
| KOMP 32         | 362060   | LA 17 – 28PS/AS/HS, LA 9 – 17TU<br>LI 11 – 28TE(R+)<br>SI(K/H) 5 – 21<br>WI 9 – 27 | 1¼                   | 2.8       |
| KOMP 40         | 362070   | LA 5 – 40TU<br>LA 40AS<br>SI(H) 40 – 50TE<br>WI 50TU                               | 1½                   | 4.9       |
| KOMP 50         | 362080   | SI 5 – 100TE(R+)<br>WI 100TU   | 2                    | 6.3       |

The installation of double-sphere rubber expansion joints between the heat pump and the heating system is strongly recommended for solid-borne sound insulation purposes. The following heat pumps are equipped with integrated solid-borne sound insulation: LA 9 – 60TU, LIKI 14TE, SI 22TU, SIK(H) compact brine-to-water heat pumps, brine-to-water and water-to-water heat pumps with two performance levels. The installation of an additional expansion joint is also recommended for these heat pumps, in order to optimise solid-borne sound insulation.

## Connection set



VSE32...

Flexible DN 32 stainless steel Wellflex pipe available in different lengths with 1½" cap nut, seals and 1½" external thread – 1¼" external thread transitional screw connection for quick and easy connection of heat pump, hot water cylinder and buffer tank to the heat distribution system.

| Order reference | Ait.-Nr. | Connection heating " | Features              | Weight kg |
|-----------------|----------|----------------------|-----------------------|-----------|
| VSE32-50        | 362520   |                      | DN 32, length 500 mm  | 0.9       |
| VSE32-100       | 362530   |                      | DN 32, length 1000 mm | 1.2       |
| VSE32-150       | 362540   | 1½                   | DN 32, length 1500 mm | 2.6       |
| VSE32-200       | 362550   |                      | DN 32, length 2000 mm | 2.7       |
| VSE32-300       | 362560   |                      | DN 32, length 3000 mm | 3.4       |

### Heating controller – heat pump manager



WPM 2006 plus



WPM EconPlus

Controller for the heat pump heating system for installation in frost-free rooms, with large back-lit LC display, time-controlled lowering and raising of the heating characteristic curves, time functions for DHW preparation according to need using the heat pump, with optional targeted reheating via flange heater. „Bivalent-renewable“ operating mode for combining the heat pump with additional renewable energy sources such as wood or solar energy; dynamic input menus with different levels for technicians and users. Two independent mixer outputs for controlling an additional heat generator and a maximum of two mixed heating circuits. Automatic program for targeted heat drying of screed floors. PC, modem and bus connection via plug-in modules (special accessories); external sensor (standard NTC-2) included in the scope of supply.

| Order reference | Ait.-Nr. | Features  | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|---|--------------------------|-----------|--|
| WPM 2006 plus   | 352550   | Delivered as a wall mounted controller in the scope of supply of the air-to-water heat pump for outdoor installation.   | 370x 330 x 90            | 4.1       |  |
| WPM EconPlus    | 355950   | Delivered as a wall mounted controller in the scope of supply of the air-to-water heat pump for outdoor installation. Integrated thermal energy meter with separate evaluation for heating and domestic hot water preparation. Simplified electrical connection with separate terminal blocks for 24 V and 230 V. | 303x 489 x 120           | 5.0       |  |

### Heat pump manager extension module



NWRM



EWPM

The NWPM extension module acts as an interface between the heat pump manager and an Ethernet network. This extension allows the remote setting and remote monitoring of the heat pump. A PC with a network card or a home network is required for this. The module can record and save data. This extension is independent of the operating system. A data exchange with a KNX/EIB bus system, and thus the connection of the heat pump manager to a building management technology system is provided via the EWPM extension module. This extension makes it possible to set and monitor the heat pump via an installation bus.

| Order reference | Ait.-Nr. | for device type                        | Features  |  |
|-----------------|----------|--|---|--|
| NWRM            | 356960   | WPM 2004 / 2006 / 2007<br>WPM EconPlus | Heat pump manager extension module for connection to an Ethernet network.                           |  |
| EWPM            | 356970   | WPM 2006 / 2007<br>WPM EconPlus        | Heat pump manager extension module for connection to the KNX/EIB bus.                               |  |
| EWPM 410        | 339410   |  | Extension module (RS485) for the heat pump manager for data transfer via Modbus interface protocol. |  |

Extension modules can be used from software version H\_H50 onwards!

### Thermal energy meter for connection to the heat pump manager



WMZ..

Thermal energy meter, consisting of a hydraulic assembly for flow and return flow (heating circuit) and electronic flow rate and temperature detection. Low pressure loss thanks to flow measurement via Kármán vortex street in the flow and integrated temperature sensor in the return flow (immersion sleeve). Electronics module for connection to the heat pump manager with separate evaluation for preparation of heating water, domestic hot water (exception: compact heat pumps) and swimming pool water. Transitional screw connections for direct connection of the WMZ 25 to the KPV 25 / DDV 25 or of the WMZ 32 to the DDV 32 included in the scope of supply.

| Order reference | Ait.-Nr. | Nominalwidth | Features  | Weight kg |  |
|-----------------|----------|--------------|---|-----------|--|
| WMZ25           | 358220   | 25           | for volume flows of 0.5 – 2.5 m <sup>3</sup> /h | 2.1       |  |
| WMZ32           | 358810   | 32           | for volume flows of 1.0 – 5.0 m <sup>3</sup> /h | 3.0       |  |

To evaluate the measured data, the heat pump manager requires software version H\_6x (software update required). High-efficiency air-to-water heat pumps have thermal energy metering already integrated. Note: The thermal energy meter complies with the quality requirements of the BAFA (= German Federal Office of Economics and Export Control) market incentive programme subsidizing efficient heat pumps. The thermal energy meter is not subject to obligatory calibration, and can thus not be used for the heating cost billing procedure!

## General accessories for the heat pump manager

|  |          |
|--|----------|
|  | AP PGD   |
|  | AWPM 900 |
|  | FG3115   |
|  | RBGWPM   |

| Order reference | Ait.-Nr. | Short text  | features  |
|-----------------|----------|---|---|
| APPGD           | 356570   | Remotecontrol for WPM 2006/2007/EconPlus/R          | For connection to the wall-mounted WPM 2006 heat pump manager with integrated display or as an additional remote control for WPM 2007/EconPlus/R. The remote control has an LC-Display with identical menu navigation an backlighting. The AWPM 900 connecting line must be ordered separately. |
| AWPM 900        | 340210   | Connection line for AP PGD                          | Heat pump manager / remote control connecting line, 6-core cable. Can also be used as a connecting line for the removable control panel of the WPM 2007.(Length 15 m)   |
| FG3115          | 336620   | External temperature sensor with casing             | Norm NTC-2 temperature sensor (2.43 kΩ/20 °C) according to DIN 44574 with weather proof casing for surface mounting, terminal connection.   |
| RBGWPM          | 339700   | Swimming pool / remote fault indicator relay module | For connecting the swimming pool circulating pump (M19) and the output of a 230 V signal if a system fault occurs (not required for heating and cooling systems).   |

## Special accessories for the heat pump manager WPM 2006

|  |          |
|--|----------|
|  | WPM 2006 |
|  | FA 550   |
|  | B/L ...  |
|  |          |
|  |          |
|  |          |

| Order reference | Ait.-Nr. | Short text         | features  |
|-----------------|----------|--------------------|---|
| NormNTC-2       | 353400   | Temperature sensor | For connection to the wall-mounted WPM 2006 heat pump manager with integrated display. Can be used as a strap-on sensor for mixed heating circuits, as a flow or cylinder sensor for the bivalent-renewable operating mode, as a hot water and room temperature sensor (for installation in on-site wall casing), standard NTC-2 sensor according to DIN 44574, diameter of 6 mm, connection cable 6 m. |
| FA 550          | 338550   | Strap-on sensor    | Temperature sensor for the heating circuit or hot water cylinder with 6 m connection cable, diameter 9.7 mm. Connection to the heat pump manager (standard NTC sensor according to DIN 44574).  |
| B/L 996-1       | 321990   | 10 control line    | Coded connecting line between the heat pump manager (heating controller) and an air-to-water heat pump installed outdoors. Wired ready for use with non-confusable plug connections (ductwork at least 70 mm).  |
| B/L 997-1       | 322000   | 20 control line    |   |
| B/L 998-1       | 322010   | 30 control line    |   |
| B/L 999-1       | 359120   | 40 control line    |   |

## Special accessories for the heat pump manager WPM 2007

|  |       |
|--|-------|
|  | MSPGD |
|  |       |

| Order reference | Ait.-Nr. | Short text                | features  |
|-----------------|----------|---------------------------|---|
| NTC-10          | 353390   | Temperature sensor NTC-10 | For connection to the WPM 2007 heat pump manager with removable control panel. Can be used as a strap-on sensor for mixed heating circuits, as a flow or cylinder sensor for the bivalent-renewable operating mode, as a hot water and room temperature sensor (for installation in on-site wall casing), diameter of 6 mm, connection cable 6 m. |
| MSPGD           | 353810   | Wall mounting set MS PGD  | For using the WPM 2007's removable control panel as a remote control or for installation at an optimum operating height. Consists of plastic frames for wall mounting, incl. fixing material, 6 m connecting cable and brown red plastic covers for the design screen.  |

## SmartRad fan convectors

### Fan convectors heating

#### SmartRad



SRX...M

Smart Rad fan convector with integrated electronic thermostat for mounting on the wall. Manual and automatic operation, maximum fan level can be preset; automatic regulation of fan level according to heat requirement. Water connection can be on the left or right. Heating and lowering times as well as frost protection can be individually adjusted using various RX programming cassettes which can be connected to the device.

| Order reference | Art.-Nr. | Rated power<br>(35 °C flow /<br>30 °C return<br>temperature)<br>W | Rated power<br>(45 °C flow /<br>40 °C return<br>temperature)<br>W | Rated power<br>(55 °C flow /<br>47 °C return<br>temperature)<br>W | Airvolume<br>flow<br>m³/h | Wdth x Height x<br>Depth<br>mm | Weight<br>kg |  |
|-----------------|----------|---|---|---|---------------------------|--------------------------------|--------------|--|
| SRX 080 m       | 359080   | 358   | 695   | 956   | 125                       | 503x 530 x 145                 | 13.5         |  |
| SRX120M         | 359090   | 561   | 1119  | 1541  | 190                       | 670x 530 x 145                 | 17.0         |  |
| SRX140M         | 359100   | 631   | 1329  | 1828  | 225                       | 740x 530 x 145                 | 18.0         |  |
| SRX 180 m       | 359110   | 893   | 1760  | 2424  | 300                       | 911x 530 x 145                 | 22.0         |  |

### Programming cassette EPX, GFP, SRX convectors



RX PW 1



RXTI RB

| Order reference | Art.-Nr. | Features  |  |
|-----------------|----------|---|--|
| RXTI 24         | RXTI24   | 24h programming cassette with LC display, connectable to EPX wall convectors. Four IN and OUT times freely programmable, lit display, key lock. Where several EPX devices are connected using a control line, a programming cassette can be used to control these devices simultaneously. Similarly, devices from the FPE, GPE, GFP, KSE and KLE series can be connected to the control line.   |  |
| RX PW 1         | RXPW1    | Weekly programming cassette with LC display, connectable to EPX wall convectors, up to four programs can be set for a weekend block (Sat-Sun) or a workday block (Mon-Fri), the IN and OUT switch times are set, with lit display and key lock. Where several EPX devices are connected using a control line, a programming cassette can be used to control these devices simultaneously. Similarly, devices from the FPE, GPE, GFP, KSE and KLE series can be connected to the control line. |  |
| RXTI RB         | RXTIRB   | Limited specified heating periods; programming cassette for setting a heating period from 0.5 – 4.0 hours, adjustable in 0.5 hour steps, when the specified heating period ends, the device shuts off or turns into antifreeze mode. Where several EPX devices are connected using a control line, a programming cassette can be used to control these devices simultaneously. Similarly, devices from the FPE, GPE, GFP, KSE and KLE series can be connected to the control line.            |  |

### Fan convectors heating/cooling

#### Fan convectors heating/cooling

Gasing colour white  
Connection voltage 1/N/PE ~230 V, 50 Hz

#### with integrated electronic thermostat

Exclusive rounded design; compact dimensions; especially suited for wall mounting; ceiling suspension possible; floor mounting using special accessories (ZH1). Water connections can be reversed during installation (1/2" internal thread connections); adjustable ventilation grid; the fan convector switches off automatically when the ventilation grid closes; electronic temperature control; automatic speed change on the ventilator; automatic operating mode switch-over and automatic switch-on/switch-off depending on the flow temperature; minimum flow temperature of 35 °C for heating operation, maximum of 17 °C for cooling operation; constant-volume water flow; ventilation unit with radial fan and 3 speed levels; especially low-noise operation; with electronically regulated fan as standard.



HL ..C

| Order reference | Art.-Nr. | Heating output<br>35/30 °C<br>W | Heating output<br>50/45 °C<br>W | Cooling capacity<br>7/12 °C<br>W | Water flow<br>l/h | Pressure drop<br>Pa | Wdth x Height x<br>Depth<br>mm | Weight<br>kg |  |
|-----------------|----------|---------------------------------|---------------------------------|----------------------------------|-------------------|---------------------|--------------------------------|--------------|--|
| HL11C           | 351730   | 510                             | 880                             | 650                              | 111               | 1170                | 640x 507 x 187                 | 13.6         |  |
| HL16C           | 351740   | 760                             | 1300                            | 950                              | 163               | 2420                | 750x 512 x 189                 | 14.6         |  |
| HL26C           | 351750   | 1410                            | 2390                            | 1790                             | 307               | 8555                | 980x 522 x 191                 | 17.6         |  |
| HL36C           | 351760   | 1780                            | 3020                            | 2330                             | 399               | 6470                | 1200x 526 x 198                | 20.6         |  |

By replacing the radiators present in existing buildings with fan convectors, the system temperatures can be lowered thereby increasing the annual performance factor of the heat pump heating system.

### Device base for floor mounting



ZH

Supporting feet for direct floor mounting of the fan convector with the option of feeding through the connecting pipes (base height: 93 mm); colour white (packaging unit 2).

| Order reference | Art.-Nr. | for device type | Weight<br>kg |  |
|-----------------|----------|-----------------|--------------|--|
| ZH1             | 351850   | HL11-36C/SK     | 0.9          |  |

## Heat pump module – heat source indoor air

### Air-to-water heat pump

Max. flow temperature for heating 65 °C

#### for utilisation of waste heat



LI2M

A heat pump module for utilisation of waste heat; integrated radial fan, exhaust and outgoing air stubs for optional connection of a duct system DN 160 (maximum length 10m), infinitely variable return set temperature. The transfer of the generated heat output is done via an integrated stainless steel heat exchanger (external circulating pump required). Heat output approx. 2 kW at an exhaust air temperature of 25°C and a heating water outlet temperature of 35°C.  
Lower operating limit heat source (heating operation) 0 °C Upper operating limit heat source (heating operation) 40°C;  
Refrigerant R134a Connection heating 1/2

| Order reference | Art.-Nr. | Short text       | Width x Height x Depth mm | Weight kg |
|-----------------|----------|------------------|---------------------------|-----------|
| LI2M            | 356330   | Heat pump module | 450x 725 x 550            | 54        |

## Hot water heat pumps – heat source indoor air / cellar air

### Hot water heat pump with foil cladding

#### with air duct connection

Hot-water temp. up to max. 60 °C

Lower operating limit heat source (heating operation) 8 °C

Upper operating limit heat source (heating operation) 35 °C



BWP 30H / BWP 30HLW

Insulated foil cladding, radial fan, exhaust air stub and outgoing air stub for optional connection of a duct system with a maximum length of 10 m, infinitely adjustable hot water temperature for total volume of 300 l, switches for heat pump and heating element, steel cylinder enamelled acc. to DIN 4753, protection anode against corrosion, medium heat pump output 1870 W, hot water temperature selectable during heat pump operation (23° to 60 °C), heating up to 65 °C with standard heating element (1. 5 kW) possible, can be either manually controlled or, e. g. , via an external timer, refrigerant designation R134A, colour white (similar to RAL 9003).

| Order reference | Art.-Nr. | Connection voltage  | COP according to EN 255 for heating up from 15 °C to 45 °C | Width x Height x Depth mm | Weight kg |
|-----------------|----------|---------------------|--|---------------------------|-----------|
| BWP30H          | 351960   | 1/N/PE~230 V, 50 Hz | 3.5  | 660x 1695 x 660           | 110       |

Nipple size DN 160, connection with SF R 162510 air hose or MFE 16 bush

The maximum hot water temperature reachable and the lower operating limit vary by ±2K due to component tolerances! In order to prevent an air short circuit, a room height of approx. 2. 5 m is necessary for free blowing-out mounting. The minimum height of the installation room is reduced to approx. 2m by using a pipe bend on the air outlet side or by using a connection to an air duct system.

### Hot water heat pump with foil cladding

#### Air duct connection and additional heat exchanger

Hot-water temp. up to max. 60 °C

Lower operating limit heat source (heating operation) 8 °C

Upper operating limit heat source (heating operation) 35 °C



BWP 30H / BWP 30HLW

Insulated foil cladding, radial fan, exhaust air stub and outgoing air stub for optional connection of a duct system with a maximum length of 10 m, infinitely adjustable hot water temperature for usable capacity of 290 l, switches for heat pump, heating element and second heat generator, steel cylinder enamelled acc. to DIN 4753, protection anode against corrosion, medium heat pump output 1870 W, hot water temperature selectable during heat pump operation (23° to 60 °C), heating up to 65 °C with standard heating element (1. 5 kW) possible, can be either manually controlled or, e. g. , via an external timer, integrated additional heat exchanger (approx. 1. 45 m<sup>2</sup>) for connecting an external heat generator (e. g. , boiler or solar installation), cladding tube for external cylinder sensor, connection option for an external block of heat pump operation, relay output for controlling an external loading pump, refrigerant designation R 134a, colour white (similar to RAL 9003).

| Order reference | Art.-Nr. | Connection voltage  | COP according to EN 255 for heating up from 15 °C to 45 °C | Width x Height x Depth mm | Weight kg |
|-----------------|----------|---------------------|--|---------------------------|-----------|
| BWP30HLW        | 351380   | 1/N/PE~230 V, 50 Hz | 3.5  | 660x 1695 x 660           | 125       |

Nipple size DN 160, connection with SF R 162510 air hose or MFE 16 bush

The maximum hot water temperature reachable and the lower operating limit vary by ±2K due to component tolerances! In order to prevent an air short circuit, a room height of approx. 2. 5 m is necessary for free blowing-out mounting. The minimum height of the installation room is reduced to approx. 2m by using a pipe bend on the air outlet side or by using a connection to an air duct system.

## Hot water heat pump with sheet-steel casing

### Air duct connection and additional heat exchanger



AWP 30HLW

High-grade painted sheet steel casing, radial fan, exhaust air stub and outgoing air stub for optional connection of a duct system with a maximum length of 10 m, infinitely adjustable hot water temperature for total volume of 290 l, switches for heat pump, heating element and second heat generator, steel cylinder enamelled acc. to DIN 4753, protection anode against corrosion, medium heat pump output 1870 W, hot water temperature selectable during heat pump operation (23° to 60°C), heating up to 65°C with standard heating element (1.5 kW) possible, can be either manually controlled or, e.g., via an external timer, integrated additional heat exchanger (approx. 1.45 m<sup>2</sup>) for connecting an external heat generator (e.g., boiler or solar installation), cladding tube for external cylinder sensor, connection option for an external block of heat pump operation, relay output for controlling an external loading pump, refrigerant designation R 134a, colour white (similar to RAL 9003).

Hot-water temp. up to max. 60°C  
Lower operating limit heat source (heating operation) 8°C  
Upper operating limit heat source (heating operation) 35°C

| Order reference | Art.-Nr. | Connection voltage  | COP according to EN 255 for heating up from 15°C to 45°C | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------------|--|---------------------------|-----------|--|
| AWP 30HLW       | 351390   | 1/N/PE~230 V, 50 Hz | 3.5  | 660x 1700 x 700           | 175       |  |

Nipple size DN 160, connection with SF R 162510 air hose or MFE 16 bush

The maximum hot water temperature reachable and the lower operating limit vary by +/- 2K due to component tolerances! In order to prevent an air short circuit, a room height of approx. 2.5 m is necessary for free blowing-out mounting. The minimum height of the installation room is reduced to approx. 2m by using a pipe bend on the air outlet side or by using a connection to an air duct system.

## Special accessories for hot water heat pumps



BGN...

| Order reference | Art.-Nr. | Short text             | Features  | Weight kg |  |
|-----------------|----------|------------------------|---|-----------|--|
| SVK852          | 326660   | Safe valve combination | For the cold water connection of drinking water cylinders to the supply network according to DIN 1988; connection 1" external thread. | 1.5       |  |
| SF R 162510     | 359620   | oSoflex pipe           | Flexible round aluminium ventilation tube, 4 layers, with 25 mm thermal insulation and vapour block                                   | 6.1       |  |
| SF SD 165015    | 360780   | oSoflex damper         | Flexible sound damper, 4 layers, with thermal insulation and vapour block   | 0.7       |  |
| BGN16-90        | 341340   | Bend (Ø60mm, 90°)      | Bend, pressed, smooth sheet steel, acc. to DIN 24145, lip seal.   | 1.0       |  |
| MFE16           | 341320   | Sleeve Ø160            | Installation between moulded parts DN 160, smooth sheet steel, acc. to DIN 24145.   | 0.2       |  |

## Hot water heat pumps – heat source indoor air / exhaust air

### Hot water heat pump with foil cladding

#### for utilisation of indoor air

Hot-water temp. up to max. 60°C

Lower operating limit heat source (heating operation) 15°C

Upper operating limit heat source (heating operation) 35°C



BWP20A

Hot water heat pumps for using 20°C indoor air for domestic hot water preparation, installation dimension 60 cm; Insulated foil cladding, radial fan, exhaust air stub and outgoing air stub for optional connection of a duct system with a maximum length of 10 m, infinitely adjustable hot water temperature for total volume of 200 l, switch for permanent fan operation, steel cylinder enamelled according to DIN 4753, protection anode against corrosion, medium heat pump output 910 W, hot water temperature selectable during heat pump operation (23° to 60°C), heating up to 65°C possible with standard heating element (1.5 kW), can be controlled either manually or, for example, via an external timer, refrigerant designation R134a, colour white (similar to RAL 9003).

| Order reference | Art.-Nr. | Connection voltage  | COP according to EN 255 for heating up from 15°C to 45°C | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------------|--|---------------------------|-----------|--|
| BWP20A          | 358230   | 1/N/PE~230 V, 50 Hz | 3.26   | 550x 1700 x 550           | 96        |  |

DN 125 outgoing air stubs for optional connection to an exhaust air system.

The maximum hot water temperature reachable and the lower operating limit vary by +/- 2K due to component tolerances!

## Accessories for DN 125 hot water heat pumps



SFR

| Order reference | Art.-Nr. | Short text   | Features  | Weight kg |  |
|-----------------|----------|--------------|---|-----------|--|
| SF R 122510     | 359610   | oSoflex pipe | Flexible round aluminium ventilation tube, 4 layers, with 25 mm thermal insulation and vapour block | 4.4       |  |

## Swimming pool dehumidifier



SE...T

Cabinet unit for dehumidifying rooms with swimming pools in recirculating air operation with active heat recovery using the heat pump. The integrated control can be used to control the humidity and, depending on the scope of supply, the temperature. Operating modes and settings are shown on and entered via the integrated display. Installation inside the room housing the swimming pool without duct connection. Air intake and air outlet directly at the installation location, no ducts required for air circulation. Air intake via perforated metal plate grid, air outlet with rotating, chromed air grids for targeted air circulation on the device top. Front panel made of saltwater-proof anodised aluminium; side and back panel made of blue plastic (similar to RAL 5002). Sound and vibration-isolated compressor decoupled from the casing; with heat exchangers with corrosion-resistant coating; automatic defrosting as standard.

Degree of protection IP 34  
Lower operating limit heat source (heating operation) 15 °C  
Upper operating limit heat source (heating operation) 38 °C

| Order reference | Art.-Nr. | Dehumidi-fication output kg/h | Air volume flow m <sup>3</sup> /h | Maximum pool surface area m <sup>2</sup> | Connection voltage  | Width x Height x Depth mm | Weight kg |  |  |
|-----------------|----------|-------------------------------|-----------------------------------|--|---------------------|---------------------------|-----------|--|--|
| SE30T           | 362480   | 2.0                           | 700                               | 30                                       | 1/N/PE~230 V, 50 Hz | 1200x 880 x 350           | 59        |  |  |
| SE40T           | 362490   | 3.0                           |                                   | 40                                       |                     |                           | 77        |  |  |
| SE50T           | 362500   | 4.0                           |                                   | 50                                       | 3/N/PE~400 V, 50 Hz |                           | 80        |  |  |
| SE60T           | 362510   | 5.2                           |                                   | 60                                       |                     |                           | 83        |  |  |

The maximum pool surface area is designed for periodically used swimming pools without an overflow gutter, with a swimming pool cover and a maximum of 2 hours' pool usage per day.

## Accessories for swimming pool dehumidifiers

| Order reference | Art.-Nr. | Features  |  |
|-----------------|----------|---|--|
| WKSSE           | 357080   | Bracket set for off-ground wall mounting.   |  |
| PWW HRG         | 356920   | Heat exchanger for subsequent air heating, including control valve and flexible connecting hoses to prevent solid-borne sound transmission. The shutoff valves and dirt traps must be installed by the customer (heat output with indoor air 29 °C / flow temperature 40 °C: 1.4 kW (SE 30T/SE 40T); 1.6 kW (SE 50T/SE 60T)). |  |



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## Solar collector



SOLC 180



SOLC 220

High-performance flat plate collector for mounting onto roofs and flat roofs or for free-standing installation, laser-welded full surface absorber with highly-selective coating. Collector for universal use can be used for larger surface areas as well as for single mounting. The connections make fast and hydraulically safe mounting possible. System is operated with pre-mixed SOLHT 20 solar fluid, providing the required frost protection. The collector casing consists of anthracite-coloured, powder-coated aluminium. The structured solar safety glass reliably protects the absorber.

Nominal flow 50–120 l/min gross surface 2.18 m<sup>2</sup>

| Order reference | Ait.-Nr. | Aperture surface m <sup>2</sup> | Efficiency level % | Features   | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------------------------|--------------------|--|--------------------------|-----------|--|
| SOLC 180        | 360510   | 1,97                            | 77.6               | Flat plate collector with single meander, max. 3 collectors can be hydraulically connected in series, 2 x 12 mm connections on top (clamping ring fittings), stagnation temperature 191°C, nominal volume 1.73 l   | 1158x 1878 x 75          | 40        |  |
| SOLC 220        | 360520   | 2,01                            | 78.1               | Flat plate collector with meander pipe and two collection manifolds, max. 10 collectors can be hydraulically connected in series, 4 x 22 mm connections on the side (plug-in system with double O-ring seal), stagnation temperature 202°C, nominal volume 1.7 l | 1158x 1178 x 95          |           |  |

## Solar station



SOLPU1



SOLPUV

Thermally insulated two-pipe solar station, pre-mounted, serves as connecting element between the collector field and the hot water cylinder. Dial thermometer in flow and return, 6 bar safety valve, permanent breather for continuous air extraction during operation, integrated purging and filling unit, suitable for wall mounting.

| Order reference | Ait.-Nr. | Features   | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|--|--------------------------|-----------|--|
| SOLPU1          | 356230   | Suitable for a collector surface of up to 12 m <sup>2</sup> , flow rate volume meter 1–20 l/min, 0–6 bar high-temperature proof pressure gauge, axis clearance 90 mm, ¾" flat-sealing connections  | 280x 560 x 200           | 7.8       |  |
| SOLPUV          | 360540   | Suitable for a collector surface of up to 22 m <sup>2</sup> , electrical valve block (3 Watt) serves as gravity control, flow rate volume meter 6.9 – 25.8 l/min (propylene glycol) and 8 – 30 l/min (water), 0 – 10 bar high-temperature proof pressure gauge, axis clearance above 45 mm, below 100 mm, 1" internal thread connections | 320x 560 x 150           | 7.5       |  |

## Mounting accessories for SOLC 180 solar collectors



SOLC 180 PAG

Mounting set for roof mounting (pantiled roof, plain tile, corrugated sheet) and free-standing installation of SOLC 180 solar collectors. Consisting of the basic set for the first collector and an extension set for each additional collector. The sets include profile rails and stop anchors for collector mounting onto the respective type of roof as well as components for the hydraulic integration.

| Order reference | Ait.-Nr. | Roofmounting system | Features  | Weight kg |  |
|-----------------|----------|---------------------|---|-----------|--|
| SOLC 180 PAG    | 360550   | Frankfurt tile      | Basic set for mounting a collector vertically or horizontally on a roof.                | 10        |  |
| SOLC 180 PAE    | 360560   |                     | Extension set for mounting any further collectors vertically or horizontally on a roof. | 7         |  |
| SOLC 180 BAG    | 360570   | Plain tile          | Basic set for mounting a collector vertically or horizontally on a roof.                | 10        |  |
| SOLC 180 BAE    | 360580   |                     | Extension set for mounting any further collectors vertically or horizontally on a roof. | 7         |  |
| SOLC 180 WAG    | 360590   | Corrugated sheet    | Basic set for mounting a collector vertically or horizontally on a roof.                | 9         |  |
| SOLC 180 WAE    | 360600   |                     | Extension set for mounting any further collectors vertically or horizontally on a roof. | 6         |  |
| SOLC 180 FAG    | 360610   | Ground mounting kit | Basic set for horizontal free-standing installation of a collector.                     | 7         |  |
| SOLC 180 FAE    | 360620   |                     | Extension set for horizontal free-standing installation of any further collectors.      | 5         |  |

## Mounting accessories for SOLC 220 solar collectors



SOLC 220 PAG

Mounting set for roof mounting (pantiled roof, plain tile, corrugated sheet) and free-standing installation of SOLC 220 solar collectors. Consisting of the basic set for the first collector and an extension set for each additional collector. The sets include profile rails and stop anchors for collector mounting onto the respective type of roof as well as components for the hydraulic integration.

| Order reference | Art.-Nr. | Roofmounting system | Features  | Weight kg |
|-----------------|----------|---------------------|---|-----------|
| SOLC 220 PAG    | 360630   | Frankfurt tile      | Basic set for mounting a collector vertically or horizontally on a roof.                | 10        |
| SOLC 220 PAE    | 360640   |                     | Extension set for mounting any further collectors vertically or horizontally on a roof. | 7         |
| SOLC 220 BAG    | 360650   | Plaintile           | Basic set for mounting a collector vertically or horizontally on a roof.                | 10        |
| SOLC 220 BAE    | 360660   |                     | Extension set for mounting any further collectors vertically or horizontally on a roof. | 7         |
| SOLC 220 WAG    | 360670   | Corrugated sheet    | Basic set for mounting a collector vertically or horizontally on a roof.                | 9         |
| SOLC 220 WAE    | 360680   |                     | Extension set for mounting any further collectors vertically or horizontally on a roof. | 6         |
| SOLC 220 FAG    | 360690   | Ground mounting kit | Basic set for horizontal free-standing installation of a collector.                     | 7         |
| SOLC 220 FAE    | 360700   |                     | Extension set for horizontal free-standing installation of any further collectors.      | 5         |

## Solar controller



SOLCU 1

For regulating or controlling thermal solar energy systems. Equipped with speed control, operating hours counter, maximum cylinder temperature, collector emergency cut-off, animated graphic LCD with backlighting. Delivery includes the PT 1000 temperature sensors.

| Order reference | Art.-Nr. | Short text  | Features  | Width x Height x Depth mm |
|-----------------|----------|---|---|---------------------------|
| SOLCU 1         | 356220   | Solar controller for one collector field and one cylinder               | Inputs: T1 – T3: Temperature detection (PT 1000); 1 output: Triac output for speed control of the solar pump (max. switching capacity 250 W [~ 230 V]).   | 137x 134 x 38             |
| SOLCU 2         | 356560   | Solar controller with 14 different pre-programmed system configurations | Inputs: T1 – T4: Temperature detection (PT 1000), T5: Temperature detection (PT 1000) or pulse detection; 2 outputs: R1: Triac output for speed control (switching capacity max. 250 W [~ 230 V]), R2: Relay switching output (switching capacity max. 800 W [~ 230 V]) | 170x 170 x 46             |

## Solar accessories

| Order reference | Art.-Nr. | Short text         | Features   |
|-----------------|----------|--------------------|--|
| SOLFH15         | 356320   | Connection set     | Pre-insulated pipe system for connecting a solar collector to the hot water cylinder and the solar station. The system consists of two pre-insulated stainless steel corrugated tubes DN 16 each 1 m long with integrated sensor leads |
| SOLAS1          | 356290   | De-aerator         | De-aerator and quick-vent valve for installation in closed solar energy systems  |
| SOLHT20         | 356260   | Heat carrier fluid | Ready-to-use heat carrier fluid (20 l) for solar energy systems, propylene glycol-based, with corrosion protection and antifreeze capacity down to -28 °C.   |
| SOLHTTK         | 356270   | Test set           | Test set for solar fluid, consisting of a refractometer for testing antifreeze and pH indicator rods for testing corrosion protection.   |

## Solar expansion vessels



SOLEV ..



SOLVK 1

| Order reference | Art.-Nr. | Nominalvolume l | Features  |
|-----------------|----------|-----------------|---|
| SOLEV 12        | 356240   | 12              | Diaphragm expansion vessel for solar energy systems, short-time temperature resistance up to 100 °C   |
| SOLEV 18        | 356250   | 18              |   |
| SOLEV 24        | 356980   | 24              |   |
| SOLEV 35        | 356990   | 35              |   |
| SOLEV 50        | 357000   | 50              |   |
| SOLEV 80        | 361970   | 80              |   |
| SOLVK 1         | 356280   |                 | Connection set (3/4") for expansion vessel, stainless steel corrugated tube (3/4"), internal thread – internal thread x 500 mm, wall bracket with mounting material, for maximum vessel diameter 440 mm |

## Solar hot water cylinders

### Solar hot water cylinders

#### for heat pumps



WWSP 432 SOL

Solar domestic hot water cylinder made of steel (special enamelling inside) with protection anode, two internal bare-tube heat exchangers for solar and heating, thermometer, polyurethane insulation for minimal stand-by losses, colour white, TK150/DN110 flange. Permissible operating pressure 10 bar;

| Order reference | Ait.-Nr. | for device type  | Features   | Diameter x Height mm | Weight kg |  |
|-----------------|----------|--|--|----------------------|-----------|--|
| WWSP 432 SOL    | 361080   | up to LI 20<br>excluding LI 16<br>up to LA 22<br>excluding LA 16 / LA 22HS<br>up to SI 11<br>up to WI 14 | 400 l nominal volume, 346 l usable capacity, 3.2 m <sup>2</sup> heat exchanger area (heating), 1.3 m <sup>2</sup> heat exchanger area (solar), 2.9 kWh/24h stand-by loss, 1 1/4" solar and heating connections, 1" hot water connection, 3/4" circulation connection | 700 x 1631           | 182       |  |
| WWSP 540 SOL    | 361090   | up to LI 28 excluding<br>LIH 26TE<br>up to LA 28 excluding<br>LA 26HS<br>up to SI 30<br>up to WI 22      | 500 l nominal volume, 427 l usable capacity, 4.0 m <sup>2</sup> heat exchanger area (heating), 1.6 m <sup>2</sup> heat exchanger area (solar), 3.2 kWh/24h stand-by loss, 1 1/4" solar and heating connections, 1" hot water connection, 3/4" circulation connection | 700 x 1961           | 218       |  |

### Solar hot water cylinders

#### for conventional heating



CWWSP 308 SOL

Solar domestic hot water cylinder made of steel (special enamelling inside) with protection anode, two internal bare-tube heat exchangers for solar and heating, thermometer, polyurethane insulation for minimal stand-by losses, colour white, TK150/DN110 flange. Permissible operating pressure 13 bar;

| Order reference | Ait.-Nr. | Features  | Diameter x Height mm | Weight kg |  |
|-----------------|----------|---|----------------------|-----------|--|
| CWWSP 308 SOL   | 361120   | 500 l nominal volume, 290 l usable capacity, 0.8 m <sup>2</sup> heat exchanger area (heating), 1.55 m <sup>2</sup> heat exchanger area (solar), 2.6 kWh/24h stand-by loss, 1" solar and heating connections, 1" hot water connection, 3/4" circulation connection | 600 x 1834           | 113       |  |
| CWWSP 411 SOL   | 361130   | 400 l nominal volume, 380 l usable capacity, 1.05 m <sup>2</sup> heat exchanger area (heating), 1.8 m <sup>2</sup> heat exchanger area (solar), 2.6 kWh/24h stand-by loss, 1" solar and heating connections, 1" hot water connection, 3/4" circulation connection | 700 x 1631           | 133       |  |

### Solar station for hot water

#### Solar back-up for domestic hot water preparation



SST25

Heat exchanger solar station consisting of solar separation system and pump assembly with insulation jackets for integrating solar installations up to 10 m<sup>2</sup> into the DHW heating system. The solar station enables efficient hot water heating via the heat pump as well as via the solar installation. Modules with primary and secondary cycle consisting of: 2 circulating pumps (WILO- STAR-ST 25/6 and STAR-RS 24/4); 4 ball valves 1" with thermometer, return flow inhibitor, safety assembly with safety valve and 0-10 bar pressure gauge, connection options for expansion vessel (solar controller not included in scope of supply).

| Order reference | Ait.-Nr. | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|--------------------------|-----------|--|
| SST25           | 348430   | 320x1050x320             | 19        |  |

## Solar package with 2 collectors



SOLP 2 ...

Solar package with 2 collectors for hot water preparation for a household of 2 – 4 people.

- 1 x SOLCU 180 solar controller
- 1 x SOLPU S solar station
- 1 x SOLVK 1 expansion vessel connection
- 1 x SOLEV 12 expansion vessel

- 1 x SOLCU 1 solar controller
- 1 x SOLHT 20 heat carrier fluid
- 1 x basic set for collector installation
- 1 x expansion set for collector installation

| Order reference | Ait.-Nr. | Roofmounting system |  |
|-----------------|----------|---------------------|--|
| SOLP2 WWPA      | 361150   | Frankfurt tile      |  |
| SOLP2 WWBA      | 361160   | Plaintile           |  |
| SOLP2 WWWA      | 361170   | Corrugated sheet    |  |
| SOLP2 WWFA      | 361180   | Ground mounting kit |  |

The solar packages can be combined with the CWWSP 308 SOL and WWSP 432 SOL solar cylinders and the BWP 30 HLW hot water heat pump.

## Solar package with 3 collectors



SOLP 3 ...

Solar package with 3 collectors for hot water preparation for a household of 4 – 6 people.

- 1 x SOLCU 180 solar controller
- 1 x SOLPU S solar station
- 1 x SOLCU 1 solar controller
- 1 x SOLVK 1 expansion vessel connection

- 1 x SOLHT 20 heat carrier fluid
- 1 x SOLEV 18 expansion vessel
- 1 x basic set for collector installation
- 2 x expansion set for installation

| Order reference | Ait.-Nr. | Roofmounting system |  |
|-----------------|----------|---------------------|--|
| SOLP3 WWPA      | 361190   | Frankfurt tile      |  |
| SOLP3 WWBA      | 361200   | Plaintile           |  |
| SOLP3 WWWA      | 361210   | Corrugated sheet    |  |
| SOLP3 WWFA      | 361220   | Ground mounting kit |  |

The solar packages can be combined with the CWWSP 411 SOL and WWSP 432 SOL solar cylinders and the BWP 30 HLW hot water heat pump

## Solar package with 4 collectors



SOLP 4 ...

Solar package with 4 collectors for hot water preparation for a household of 6 – 8 people

- 4 x SOLC 220 solar collector
- 1 x SOLPU S solar station
- 1 x SOLCU 1 solar controller
- 1 x SOLVK 1 expansion vessel connection

- 1 x SOLEV 24 expansion vessel
- 2 x SOLHT 20 heat carrier fluid
- 1 x basic set for collector installation
- 3 x expansion set for installation

| Order reference | Ait.-Nr. | Roofmounting system |  |
|-----------------|----------|---------------------|--|
| SOLP4 WWPA      | 361230   | Frankfurt tile      |  |
| SOLP4 WWBA      | 361240   | Plaintile           |  |
| SOLP4 WWWA      | 361250   | Corrugated sheet    |  |
| SOLP4 WWFA      | 361260   | Ground mounting kit |  |

The solar packages can be combined with the WWSP 540 SOL solar cylinder

## Solar package with 5 collectors



SOLP 5 ...

Solar package with 5 collectors for hot water preparation and supplementary heating.

- 5 x SOLC 220 solar collector
- 1 x SOLPU V solar station
- 1 x SOLVK 1 expansion vessel connection
- 1 x SOLEV 35 expansion vessel
- 1 x SOLCU 1 solar controller
- 2 x SOLHT 20 heat carrier fluid
- 1 x basic set for collector installation
- 4 x expansion set for installation

| Order reference | Ait.-Nr. | Roofmounting system |  |
|-----------------|----------|---------------------|--|
| SOLP 5 HUPA     | 361270   | Frankfurt tile      |  |
| SOLP 5 HUBA     | 361280   | Plaintile           |  |
| SOLP 5 HUWA     | 361290   | Corrugated sheet    |  |
| SOLP 5 HUFA     | 361300   | Ground mounting kit |  |

The solar packages can be combined with the PWD 750 (RWT 750) combo tank and the PSW 500 (RWT 500) buffer tank.

## Solar package with 6 collectors



SOLP 6 ...

Solar packages with 6 collectors for hot water preparation and supplementary heating.

- 6 x SOLC 220 solar collector
- 1 x SOLPU V solar station
- 1 x SOLVK 1 expansion vessel connection
- 1 x SOLEV 35 expansion vessel
- 1 x SOLCU 1 solar controller
- 2 x SOLHT 20 heat carrier fluid
- 1 x basic set for collector installation
- 5 x expansion set for installation

| Order reference | Ait.-Nr. | Roofmounting system |  |
|-----------------|----------|---------------------|--|
| SOLP 6 HUPA     | 361310   | Frankfurt tile      |  |
| SOLP 6 HUBA     | 361320   | Plaintile           |  |
| SOLP 6 HUWA     | 361330   | Corrugated sheet    |  |
| SOLP 6 HUFA     | 361340   | Ground mounting kit |  |

The solar packages can be combined with the PWD 750 (RWT 750) combo tank

## Solar package with 7 collectors



SOLP 7 ...

Solar packages with 7 collectors for hot water preparation and supplementary heating.

- 7 x SOLC 220 solar collector
- 1 x SOLPU V solar station
- 1 x SOLVK 1 expansion vessel connection
- 1 x SOLEV 50 expansion vessel
- 1 x SOLCU 1 solar controller
- 3 x SOLHT 20 heat carrier fluid
- 1 x basic set for collector installation
- 6 x expansion set for installation

| Order reference | Ait.-Nr. | Roofmounting system |  |
|-----------------|----------|---------------------|--|
| SOLP 7 HUPA     | 361350   | Frankfurt tile      |  |
| SOLP 7 HUBA     | 361360   | Plaintile           |  |
| SOLP 7 HUWA     | 361370   | Corrugated sheet    |  |
| SOLP 7 HUFA     | 361380   | Ground mounting kit |  |

The solar packages can be combined with the PWD 750 (RWT 750) combo tank

## Solar package with 8 collectors



SOLP 8 ...

Solar packages with 8 collectors for hot water preparation and supplementary heating.

- 8 x SOLC 220 solar collector
- 1 x SOLPU V solar station
- 1 x SOLVK 1 expansion vessel connection
- 1 x SOLEV 50 expansion vessel
- 1 x SOLCU 1 solar controller
- 3 x SOLHT 20 heat carrier fluid
- 1 x basic set for collector installation
- 7 x expansion set for installation

| Order reference | Ait.-Nr. | Roofmounting system |  |
|-----------------|----------|---------------------|--|
| SOLP 8 HUPA     | 361390   | Frankfurt tile      |  |
| SOLP 8 HUBA     | 361400   | Plaintile           |  |
| SOLP 8 HUWA     | 361410   | Corrugated sheet    |  |
| SOLP 8 HUFA     | 361420   | Ground mounting kit |  |

The solar packages can be combined with the PWD 750 (RWT 750) combo tank

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VFDi...C

## ThermoComfort duo-electronic storage heaters

Connection voltage 3/N/PE ~400 V, 50 Hz

## Compact design

- Digital electronic duo charge controller with 2 control inputs for optional connection to DC charge controls (0.91–1.43 V) or to AC charge controls (AC 230 V, % operating time)
- AC control system adjustable from 80% operating time to 37/40% operating time or to 68/70% operating time
- High-grade hard-shell core thermal insulation of natural vermiculite with Microtherm®
- 5 selectable switch-off temperatures for charge optimisation
- Positive/negative fault behaviour adjustable on the duo charge controller
- Integrated thermal enable contactor
- Suitable for direct control without heating contactor
- Infinitely variable manual selection of the charge volume for operation without charge control

- Discharging via special accessory wall-mounted or integrated room temperature controller
- High-performance, low-noise radial fan
- Operator controls in the control recess on the right-hand side panel
- Radiator kit for optimised device adaptation to charge type and heat consumption
- A day current supplementary heater can be installed as a special accessory for additional/transitional heating
- Powder-coated sheet-steel casing
- Casing colour **traffic white** (similar to RAL 9016), air outlet grid **birch grey**
- Delivery form: casing, brick bundles and radiator kit
- VDE approval mark

| Order reference    | Art.-Nr. | Rated power W | Number of brick bundles | Brickbundle type | Size | Width x Height x Depth mm | Weight kg |  |  |  |  |  |
|--------------------|----------|---------------|-------------------------|------------------|------|---------------------------|-----------|--|--|--|--|--|
| VFDi 20C/HFi 212   | 345010   | 1250          | 4                       | Kolli25          | S0E  | 626x 672 x 250            | 98        |  |  |  |  |  |
| VFDi 20C/HFi 216   | 345020   | 1600          |                         |                  |      |                           |           |  |  |  |  |  |
| VFDi 20C/HFi 220   | 345030   | 2000          |                         |                  |      |                           |           |  |  |  |  |  |
| VFDi 20C/HFi 227 * | 345040   | 2700          |                         |                  |      |                           |           |  |  |  |  |  |
| VFDi 30C/HFi 318   | 345050   | 1850          | 6                       |                  | S0E  | 776x 672 x 250            | 137       |  |  |  |  |  |
| VFDi 30C/HFi 324   | 345060   | 2400          |                         |                  |      |                           |           |  |  |  |  |  |
| VFDi 30C/HFi 330   | 345070   | 3000          |                         |                  |      |                           |           |  |  |  |  |  |
| VFDi 30C/HFi 340 * | 345080   | 4000          |                         |                  |      |                           |           |  |  |  |  |  |
| VFDi 40C/HFi 425   | 345090   | 2500          | 8                       | Kolli25          | S0E  | 926x 672 x 250            | 176       |  |  |  |  |  |
| VFDi 40C/HFi 432   | 345100   | 3200          |                         |                  |      |                           |           |  |  |  |  |  |
| VFDi 40C/HFi 440   | 345110   | 4000          |                         |                  |      |                           |           |  |  |  |  |  |
| VFDi 40C/HFi 452 * | 345120   | 5200          |                         |                  |      |                           |           |  |  |  |  |  |
| VFDi 50C/HFi 540   | 345130   | 4000          | 10                      | Kolli25          | S0E  | 1076x 672 x 250           | 215       |  |  |  |  |  |
| VFDi 50C/HFi 550   | 345140   | 5000          |                         |                  |      |                           |           |  |  |  |  |  |
| VFDi 50C/HFi 564 * | 345150   | 6400          |                         |                  |      |                           |           |  |  |  |  |  |
| VFDi 60C/HFi 648   | 345160   | 4800          |                         |                  |      |                           |           |  |  |  |  |  |
| VFDi 60C/HFi 660   | 345170   | 6000          | 12                      | Kolli25          | S0E  | 1226x 672 x 250           | 254       |  |  |  |  |  |
| VFDi 60C/HFi 676 * | 345180   | 7600          |                         |                  |      |                           |           |  |  |  |  |  |
| VFDi 70C/HFi 756   | 345190   | 5600          |                         |                  |      |                           |           |  |  |  |  |  |
| VFDi 70C/HFi 770   | 345200   | 7000          | 14                      |                  |      |                           |           |  |  |  |  |  |
| VFDi 70C/HFi 790 * | 345210   | 9000          |                         |                  |      |                           |           |  |  |  |  |  |

\* for rated charge time  $t_c = 5$  and 6 hours

Depth plus 35 mm wall connection

**ThermoComfort storage heaters**

Connection voltage 3/N/PE ~400 V, 50 Hz

**Compact design**

VFMi ...C

- High-grade hard-shell core thermal insulation of natural vermiculite with Microtherm®
- Thermomechanical charge controller for connection to AC charge control (230 V alternating voltage)
- AC control system 230V AC, 80% operating time
- Infinitely variable manual selection of the charge volume for operation without charge control
- Radiator kit for optimised device adaptation to charge type and heat consumption

- Discharging via special accessory wall-mounted or integrated room temperature controller
- A day current supplementary heater can be installed as a special accessory for additional/transitional heating
- Casing colour **traffic white** (similar to RAL 9016), air outlet grid **birch grey**
- Delivery form: casing, brick bundles and radiator kit
- VDE approval mark

| Order reference    | Art.-Nr. | Rated power W | Number of brick bundles | Brickbundle type | Size            | Width x Height x Depth mm | Weight kg |  |
|--------------------|----------|---------------|-------------------------|------------------|-----------------|---------------------------|-----------|--|
| VFMi 20C/HFi 212   | 345220   | 1250          | 4                       | S0E              | 626x 672 x 250  | 98                        |           |  |
| VFMi 20C/HFi 216   | 345230   | 1600          |                         |                  |                 |                           |           |  |
| VFMi 20C/HFi 220   | 345240   | 2000          |                         |                  |                 |                           |           |  |
| VFMi 20C/HFi 227 * | 345250   | 2700          |                         |                  |                 |                           |           |  |
| VFMi 30C/HFi 318   | 345260   | 1850          | 6                       | S0E              | 776x 672 x 250  | 137                       |           |  |
| VFMi 30C/HFi 324   | 345270   | 2400          |                         |                  |                 |                           |           |  |
| VFMi 30C/HFi 330   | 345280   | 3000          |                         |                  |                 |                           |           |  |
| VFMi 30C/HFi 340 * | 345290   | 4000          |                         |                  |                 |                           |           |  |
| VFMi 40C/HFi 425   | 345300   | 2500          | 8                       | S0E              | 926x 672 x 250  | 176                       |           |  |
| VFMi 40C/HFi 432   | 345310   | 3200          |                         |                  |                 |                           |           |  |
| VFMi 40C/HFi 440   | 345320   | 4000          |                         |                  |                 |                           |           |  |
| VFMi 40C/HFi 452 * | 345330   | 5200          |                         |                  |                 |                           |           |  |
| VFMi 50C/HFi 540   | 345340   | 4000          | 10                      | S0E              | 1076x 672 x 250 | 215                       |           |  |
| VFMi 50C/HFi 550   | 345350   | 5000          |                         |                  |                 |                           |           |  |
| VFMi 50C/HFi 564 * | 345360   | 6400          |                         |                  |                 |                           |           |  |
| VFMi 60C/HFi 648   | 345370   | 4800          | 12                      | S0E              | 1226x 672 x 250 | 254                       |           |  |
| VFMi 60C/HFi 660   | 345380   | 6000          |                         |                  |                 |                           |           |  |
| VFMi 60C/HFi 676 * | 345390   | 7600          |                         |                  |                 |                           |           |  |
| VFMi 70C/HFi 756   | 345400   | 5600          | 14                      | S0E              | 1376x 672 x 250 | 293                       |           |  |
| VFMi 70C/HFi 770   | 345410   | 7000          |                         |                  |                 |                           |           |  |
| VFMi 70C/HFi 790 * | 345420   | 9000          |                         |                  |                 |                           |           |  |

\* for rated charge time  $t_f = 5$  and 6 hours

Depth plus 35 mm wall connection

## ThermoComfort duo-electronic storage heaters

Connection voltage 3/N/PE ~400 V, 50 Hz

## Slim Line Casing



FSD...C

- With wall bracket for mounting on load-bearing brickwork included as standard
- Digital electronic duo charge controller with 2 control inputs for optional connection to DC charge controls (0.91–1.43 V) or to AC charge controls (AC 230 V, % operating time)
- AC control system adjustable from 80 % operating time to 37/40 % operating time or to 68/70 % operating time
- High-grade hard-shell core thermal insulation of natural vermiculite with Microtherm®
- 5 selectable switch-off temperatures for charge optimisation
- Positive/negative fault behaviour adjustable on the duo charge controller
- Integrated thermal enable contactor
- Suitable for direct control without heating contactor
- Infinitely variable manual selection of the charge volume for operation without charge control
- Discharging via special accessory wall-mounted or integrated room temperature controller
- High-performance, low-noise radial fan
- Operator controls in the control recess on the right-hand side panel
- Radiator kit for optimised device adaptation to charge type and heat consumption
- A day current supplementary heater can be installed as a special accessory for additional/transitional heating
- Powder-coated sheet-steel casing
- Casing colour **traffic white** (similar to RAL 9016), air outlet grid **birch grey**
- Can be extended to a two-circuit storage heater (using kit GH 18) for controlled storage heating GEH (charge type of EnBW / ODR)**
- Delivery form: casing, brick bundles and radiator kit
- VDE approval mark

| Order reference  | Ait.-Nr. | Rated power W | Number of brick bundles | Brickbundle type | Size            | Width x Height x Depth mm | Weight kg |  |
|------------------|----------|---------------|-------------------------|------------------|-----------------|---------------------------|-----------|--|
| FSD 12C/HS 1207  | 345430   | 750           | 2                       | Kolli18          | M2E             | 636x 533 x 214            | 75        |  |
| FSD 12C/HS 1209  | 345440   | 900           |                         |                  |                 |                           |           |  |
| FSD 12C/HS 1210  | 345450   | 1050          |                         |                  |                 |                           |           |  |
| FSD 12C/HS 1212  | 345460   | 1200          |                         |                  |                 |                           |           |  |
| FSD 18C/HS 1811  | 345470   | 1150          |                         |                  | M8E             | 786x 533 x 214            | 104       |  |
| FSD 18C/HS 1813  | 345480   | 1350          |                         |                  |                 |                           |           |  |
| FSD 18C/HS 1816  | 345490   | 1600          |                         |                  |                 |                           |           |  |
| FSD 18C/HS 1818  | 345500   | 1800          |                         |                  |                 |                           |           |  |
| FSD 24C/HS 2415  | 345510   | 1500          | 4                       | B4E              | 936x 533 x 214  | 133                       |           |  |
| FSD 24C/HS 2418  | 345520   | 1800          |                         |                  |                 |                           |           |  |
| FSD 24C/HS 2421  | 345530   | 2100          |                         |                  |                 |                           |           |  |
| FSD 24C/HS 2424  | 345540   | 2400          |                         |                  |                 |                           |           |  |
| FSD 24C/HSZ 2425 | 345550   | 2550          | 5                       | B0E              | 1086x 533 x 214 | 162                       |           |  |
| FSD 30C/HS 3019  | 345560   | 1900          |                         |                  |                 |                           |           |  |
| FSD 30C/HS 3022  | 345570   | 2250          |                         |                  |                 |                           |           |  |
| FSD 30C/HS 3026  | 345580   | 2650          |                         |                  |                 |                           |           |  |
| FSD 30C/HS 3030  | 345590   | 3000          |                         |                  |                 |                           |           |  |
| FSD 30C/HSZ 3032 | 345600   | 3250          | 6                       | B6E              | 1236x 533 x 214 | 191                       |           |  |
| FSD 36C/HS 3622  | 345610   | 2250          |                         |                  |                 |                           |           |  |
| FSD 36C/HS 3627  | 345620   | 2700          |                         |                  |                 |                           |           |  |
| FSD 36C/HS 3631  | 345630   | 3150          |                         |                  |                 |                           |           |  |
| FSD 36C/HS 3636  | 345640   | 3600          | 7                       | M2E              | 1386x 533 x 214 | 220                       |           |  |
| FSD 42C/HS 4226  | 345650   | 2600          |                         |                  |                 |                           |           |  |
| FSD 42C/HS 4231  | 345660   | 3150          |                         |                  |                 |                           |           |  |
| FSD 42C/HS 4237  | 345670   | 3700          |                         |                  |                 |                           |           |  |
| FSD 42C/HS 4242  | 345680   | 4200          | 8                       | M8E              | 1536x 533 x 214 | 249                       |           |  |
| FSD 48C/HS 4830  | 345690   | 3000          |                         |                  |                 |                           |           |  |
| FSD 48C/HS 4836  | 345700   | 3600          |                         |                  |                 |                           |           |  |
| FSD 48C/HS 4842  | 345710   | 4200          |                         |                  |                 |                           |           |  |
| FSD 48C/HS 4848  | 345720   | 4800          |                         |                  |                 |                           |           |  |

Depth = installation depth incl. wall connection

HSZ radiator only for the EnBW / ODR charge type GEH (controlled storage heating)  
phase out: HS 1207, HS 1811, HS 2415, HS 3019, HS 3622, HS 4226, HS 4830The two-circuit cylinder kit **GH 18** enables the use of the basic device FSD 12C – FSD 36C as a two-circuit storage heater for controlled storage heating (GEH) of the EnBW / ODR utility company.

**ThermoComfort duo-electronic storage heaters**

Connection voltage 3/N/PE ~400 V, 50 Hz

**Low series**

VNDi ... C

- Digital electronic duo charge controller with 2 control inputs for optional connection to DC charge controls (0.91–1.43 V) or to AC charge controls (AC 230 V, % operating time)
- AC control system adjustable from 80 % operating time to 37/40 % operating time or to 68/70 % operating time
- High-grade hard-shell core thermal insulation of natural vermiculite with Microtherm®
- 5 selectable switch-off temperatures for charge optimisation
- Positive/negative fault behaviour adjustable on the duo charge controller
- Integrated thermal enable contactor
- Suitable for direct control without heating contactor
- Infinitely variable manual selection of the charge volume for operation without charge control

- Discharging via special accessory wall-mounted or integrated room temperature controller
- High-performance, low-noise radial fan
- Operator controls in the control recess of the front panel
- Radiator kit for optimised device adaptation to charge type and heat consumption
- A day current supplementary heater can be installed as a special accessory for additional/transitional heating
- Powder-coated sheet-steel casing
- Casing colour **traffic white** (similar to RAL 9016), air outlet grid **birch grey**
- Delivery form: casing, brick bundles and radiator kit
- VDE approval mark

| Order reference   | Art.-Nr. | Rated power W | Number of brick bundles | Brickbundle type | Size | Width x Height x Depth mm | Weight kg |  |
|-------------------|----------|---------------|-------------------------|------------------|------|---------------------------|-----------|--|
| VNDi 30C/HNi 3024 | 346030   | 2400          | 8                       | Kolli25N         | 130E | 890x 484 x 250            | 156       |  |
| VNDi 30C/HNi 3030 | 346040   | 3000          |                         |                  | 136E | 1040x 484 x 250           | 191       |  |
| VNDi 36C/HNi 3629 | 346050   | 2900          |                         |                  | 133E | 1190x 484 x 250           | 226       |  |
| VNDi 36C/HNi 3636 | 346060   | 3600          |                         |                  | 130E | 1340x 484 x 250           | 261       |  |
| VNDi 43C/HNi 4334 | 346070   | 3450          |                         |                  |      |                           |           |  |
| VNDi 43C/HNi 4343 | 346080   | 4300          | 12                      |                  |      |                           |           |  |
| VNDi 50C/HNi 5040 | 346090   | 4000          |                         |                  |      |                           |           |  |
| VNDi 50C/HNi 5050 | 346100   | 5000          |                         |                  |      |                           |           |  |

Depth plus 35 mm wall connection

**ThermoComfort duo-electronic storage heaters**

Connection voltage 3/N/PE ~400 V, 50 Hz

**Low design with minimal width**

VTDi ... C

- Digital electronic duo charge controller with 2 control inputs for optional connection to DC charge controls (0.91–1.43 V) or to AC charge controls (AC 230 V, % operating time)
- AC control system adjustable from 80 % operating time to 37/40 % operating time or to 68/70 % operating time
- High-grade hard-shell core thermal insulation of natural vermiculite with Microtherm®
- 5 selectable switch-off temperatures for charge optimisation
- Positive/negative fault behaviour adjustable on the duo charge controller
- Integrated thermal enable contactor
- Suitable for direct control without heating contactor
- Infinitely variable manual selection of the charge volume for operation without charge control

- Discharging via special accessory wall-mounted or integrated room temperature controller
- High-performance, low-noise radial fan
- Operator controls in the control recess of the front panel
- Radiator kit for optimised device adaptation to charge type and heat consumption
- A day current supplementary heater can be installed as a special accessory for additional/transitional heating
- Powder-coated sheet-steel casing
- Casing colour **traffic white** (similar to RAL 9016), air outlet grid **birch grey**
- Delivery form: casing, brick bundles and radiator kit
- VDE approval mark

| Order reference   | Art.-Nr. | Rated power W | Number of brick bundles | Brickbundle type | Size | Width x Height x Depth mm | Weight kg |  |
|-------------------|----------|---------------|-------------------------|------------------|------|---------------------------|-----------|--|
| VTDi 45C/HTi 4536 | 346190   | 3600          | 6                       | Kolli36T         | 145E | 740x 654 x 360            | 195       |  |
| VTDi 45C/HTi 4545 | 346200   | 4500          |                         |                  | 160E | 890x 654 x 360            | 251       |  |
| VTDi 60C/HTi 6048 | 346210   | 4800          |                         |                  | 175E | 1040x 654 x 360           | 307       |  |
| VTDi 60C/HTi 6060 | 346220   | 6000          |                         |                  |      |                           |           |  |
| VTDi 75C/HTi 7560 | 346230   | 6000          |                         |                  |      |                           |           |  |
| VTDi 75C/HTi 7575 | 346240   | 7500          | 10                      |                  |      |                           |           |  |
|                   |          |               |                         |                  |      |                           |           |  |

Depth plus 35 mm wall connection

## ThermoComfort duo-electronic storage heaters

Connection voltage 3/N/PE ~400 V, 50 Hz

## Hearth design

- Can be integrated, mounted under a worktop or panelled with solid kitchen panelling
- Digital electronic duo charge controller with 2 control inputs for optional connection to DC charge controls (0.91–1.43 V) or to AC charge controls (AC 230 V, % operating time)
- AC control system adjustable from 80 % operating time to 37/40 % operating time or to 68/70 % operating time
- High-grade hard-shell core thermal insulation of natural vermiculite with Microtherm®
- Integrated thermal enable contactor
- Suitable for direct control without heating contactor



VXD 24 with VKE 20

- Infinitely variable manual selection of the charge volume for operation without charge control
- Discharging via room temperature controller integrated as standard
- Radiator kit for optimised device adaptation to charge type and heat consumption
- A "supplementary heating relay kit" can be installed as a special accessory for additional/transitional heating
- Casing colour kitchen white
- Delivery form: casing, brick bundles and radiator kit
- VDE approval mark

| Order reference | Ait.-Nr. | Rated power W | Number of brick bundles | Brickbundle type | Size | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|-------------------------|------------------|------|---------------------------|-----------|--|
| VXD 24/HK 219F  | 346310   | 1900          | 2                       | Kolli33          | H4E  | 450x 840 x 570            | 133       |  |
| VXD 24/HK 224F  | 346320   | 2400          |                         |                  |      |                           |           |  |

Built-under unit delivered without front cover and worktop  
Height adjustable

## PERMATHERM® storage heaters

Connection voltage 3/N/PE ~400 V, 50 Hz

## Compact design Universa



ESS ... K

- Storage heater in compact design
- High-grade hard-shell core thermal insulation of natural vermiculite with Microtherm®
- Dynamic discharge
- Thermomechanical AC charge controller

- AC control system 230V AC, 80 % operating time
- Casing colour: sepia white (similar to RAL 9001), grey-brown air outlet grid
- Delivery form: casing, brick bundles and radiator kit
- VDE approval mark

| Order reference | Ait.-Nr. | Rated power W | Number of brick bundles | Brickbundle type | Size | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|-------------------------|------------------|------|---------------------------|-----------|--|
| ESS 2012 K      | IC251335 | 1250          |                         |                  |      |                           |           |  |
| ESS 2016 K      | IC251337 | 1600          |                         |                  |      |                           |           |  |
| ESS 2020 K      | IC251339 | 2000          |                         |                  |      |                           |           |  |
| ESS 2027 K *    | IC251344 | 2700          |                         |                  |      |                           |           |  |
| ESS 3018 K      | IC251347 | 1850          |                         |                  |      |                           |           |  |
| ESS 3024 K      | IC251351 | 2400          |                         |                  |      |                           |           |  |
| ESS 3030 K      | IC251355 | 3000          |                         |                  |      |                           |           |  |
| ESS 3040 K *    | IC251357 | 4000          |                         |                  |      |                           |           |  |
| ESS 4025 K      | IC251362 | 2500          |                         |                  |      |                           |           |  |
| ESS 4032 K      | IC251365 | 3200          |                         |                  |      |                           |           |  |
| ESS 4040 K      | IC251367 | 4000          |                         |                  |      |                           |           |  |
| ESS 4052 K *    | IC251369 | 5200          |                         |                  |      |                           |           |  |
| ESS 5040 K      | IC251374 | 4000          |                         |                  |      |                           |           |  |
| ESS 5050 K      | IC251376 | 5000          |                         |                  |      |                           |           |  |
| ESS 5064 K *    | IC251378 | 6400          |                         |                  |      |                           |           |  |
| ESS 6048 K      | IC251386 | 4800          |                         |                  |      |                           |           |  |
| ESS 6060 K      | IC251388 | 6000          |                         |                  |      |                           |           |  |
| ESS 6076 K *    | IC251390 | 7600          |                         |                  |      |                           |           |  |
| ESS 7056 K      | IC251397 | 5600          |                         |                  |      |                           |           |  |
| ESS 7070 K      | IC251399 | 7000          |                         |                  |      |                           |           |  |
| ESS 7090 K *    | IC251401 | 9000          |                         |                  |      |                           |           |  |

\* for rated charge time  $t_f = 5$  and 6 hours

Depth plus 35 mm wall connection

**PERMATHERM® storage heaters**

Connection voltage 3/N/PE ~400 V, 50 Hz

**Slim Line Casing Optima**

- Storage heater in flat design
- High-grade hard-shell core thermal insulation of natural vermiculite with Microtherm®
- Dynamic discharge
- Thermomechanical AC charge controller
- AC control system 230 V AC, 80% operating time

- Wall mounting for load-bearing brickwork
- Casing colour: sepia white (similar to RAL 9001), grey-brown air outlet grid
- Delivery form: casing, brick bundles and radiator kit
- VDE approval mark

ESF ... K

| Order reference | Art.-Nr. | Rated power W | Number of brick bundles | Brickbundle type | Size | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|-------------------------|------------------|------|---------------------------|-----------|--|
| ESF 1207 K      | IC260070 | 750           | 2                       | Kollis 18        | R2E  | 636x 533 x 214            | 75        |  |
| ESF 1209 K      | IC260080 | 900           |                         |                  |      |                           |           |  |
| ESF 1210 K      | IC260090 | 1050          |                         |                  |      |                           |           |  |
| ESF 1212 K      | IC260100 | 1200          |                         |                  |      |                           |           |  |
| ESF 1811 K      | IC260110 | 1150          |                         |                  | R8E  | 786x 533 x 214            | 104       |  |
| ESF 1813 K      | IC260120 | 1350          |                         |                  |      |                           |           |  |
| ESF 1816 K      | IC260130 | 1600          |                         |                  |      |                           |           |  |
| ESF 1818 K      | IC260140 | 1800          |                         |                  |      |                           |           |  |
| ESF 2415 K      | IC260150 | 1500          | 4                       | Kollis 18        | R4E  | 936x 533 x 214            | 133       |  |
| ESF 2418 K      | IC260160 | 1800          |                         |                  |      |                           |           |  |
| ESF 2421 K      | IC260170 | 2100          |                         |                  |      |                           |           |  |
| ESF 2424 K      | IC260180 | 2400          |                         |                  |      |                           |           |  |
| ESF 3019 K      | IC260190 | 1900          | 5                       | Kollis 18        | R0E  | 1086x 533 x 214           | 162       |  |
| ESF 3022 K      | IC260200 | 2250          |                         |                  |      |                           |           |  |
| ESF 3026 K      | IC260210 | 2650          |                         |                  |      |                           |           |  |
| ESF 3030 K      | IC260220 | 3000          |                         |                  |      |                           |           |  |
| ESF 3622 K      | IC260230 | 2250          | 6                       | Kollis 18        | R6E  | 1236x 533 x 214           | 191       |  |
| ESF 3627 K      | IC260240 | 2700          |                         |                  |      |                           |           |  |
| ESF 3631 K      | IC260250 | 3150          |                         |                  |      |                           |           |  |
| ESF 3636 K      | IC260260 | 3600          |                         |                  |      |                           |           |  |
| ESF 4226 K      | IC260270 | 2600          | 7                       | Kollis 18        | R2E  | 1386x 533 x 214           | 220       |  |
| ESF 4231 K      | IC260280 | 3150          |                         |                  |      |                           |           |  |
| ESF 4237 K      | IC260290 | 3700          |                         |                  |      |                           |           |  |
| ESF 4242 K      | IC260300 | 4200          |                         |                  |      |                           |           |  |
| ESF 4830 K      | IC260310 | 3000          | 8                       | Kollis 18        | R8E  | 1536x 533 x 214           | 249       |  |
| ESF 4836 K      | IC260320 | 3600          |                         |                  |      |                           |           |  |
| ESF 4842 K      | IC260330 | 4200          |                         |                  |      |                           |           |  |
| ESF 4848 K      | IC260340 | 4800          |                         |                  |      |                           |           |  |

Depth = installation depth incl. wall connection  
phase out: ESF 1207, ESF 1811, ESF 2415, ESF 3019, ESF 3622, ESF 4226, ESF 4830

## PERMATHERM® storage heaters

Connection voltage 1/N/PE ~230 V, 50 Hz

### Two-circuit unit in slim line casing Optima



ESFZ ... K

- Two-circuit storage heater for controlled electrical heating GEH (charge type of the EnBW/ODR)
- High-grade hard-shell core thermal insulation of natural vermiculite with Microtherm®
- Thermomechanical AC charge controller
- AC control system 230V AC, 80% operating time
- Wall mounting for load-bearing brickwork
- Casing colour: sepia white (similar to RAL 9001), grey-brown air outlet grid

- Key solution: Kit ESF ZKM is used to convert the basic device into a two-circuit system as required for controlled storage heating by the EnBW/ODR utility company and thus into a two-circuit storage heater.
- Delivery form: casing, brick bundles and radiator kit
- Including two-circuit storage heater kit ESF ZKM
- VDE approval mark

| Order reference | Ait.-Nr. | Rated power W | Number of brick bundles | Brickbundle type | Size | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|-------------------------|------------------|------|---------------------------|-----------|--|
| ESFZ 1212 K     | IC260350 | 800<br>400    | 2                       | Kolli18          | F2E  | 636x 533 x 214            | 75        |  |
| ESFZ 1818 K     | IC260360 | 1200<br>600   | 3                       |                  | F8E  | 786x 533 x 214            | 104       |  |
| ESFZ 2425 K     | IC260370 | 1600<br>950   | 4                       |                  | F4E  | 936x 533 x 214            | 133       |  |
| ESFZ 3032 K     | IC260380 | 2000<br>1250  | 5                       |                  | B0E  | 1086x 533 x 214           | 162       |  |
| ESFZ 3636 K     | IC260390 | 2400<br>1200  | 6                       |                  | B6E  | 1236x 533 x 214           | 191       |  |

Depth = installation depth incl. wall connection

The rated power is made up of the storage part and the storage-free part

## PERMATHERM® storage heaters

Connection voltage 3/N/PE ~400 V, 50 Hz

### Low series



ESN ... K

- For installation under low windows
- High-grade hard-shell core thermal insulation of natural vermiculite with Microtherm®
- Dynamic discharge
- Thermomechanical AC charge controller

- AC control system 230V AC, 80% operating time
- Casing colour: sepia white (similar to RAL 9001), grey-brown air outlet grid
- Delivery form: casing, brick bundles and radiator kit
- VDE approval mark

| Order reference | Ait.-Nr. | Rated power W | Number of brick bundles | Brickbundle type | Size            | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|-------------------------|------------------|-----------------|---------------------------|-----------|--|
| ESN 3024 K      | IC251288 | 2400          | Kolli25N                | N30E             | 890x 484 x 250  | 156                       |           |  |
| ESN 3030 K      | IC251293 | 3000          |                         |                  | 1040x 484 x 250 | 191                       |           |  |
| ESN 3629 K      | IC251291 | 2900          |                         | N36E             | 1190x 484 x 250 | 226                       |           |  |
| ESN 3636 K      | IC251295 | 3600          |                         |                  | 1340x 484 x 250 | 261                       |           |  |
| ESN 4334 K      | IC251299 | 3450          |                         | N33E             | 890x 654 x 360  | 251                       |           |  |
| ESN 4343 K      | IC251301 | 4300          |                         |                  | 1040x 654 x 360 | 307                       |           |  |
| ESN 5040 K      | IC251305 | 4000          |                         | T60E             | 890x 654 x 360  | 251                       |           |  |
| ESN 5050 K      | IC251307 | 5000          |                         |                  | 1040x 654 x 360 | 307                       |           |  |

Depth plus 35 mm wall connection

## PERMATHERM® storage heaters

Connection voltage 3/N/PE ~400 V, 50 Hz

### Extra-deep



EST ... K

- For living rooms with minimal floor space and a high heating requirement.
- High-grade hard-shell core thermal insulation of natural vermiculite with Microtherm®
- Dynamic discharge
- Thermomechanical AC charge controller

- AC control system 230V AC, 80% operating time
- Casing colour: sepia white (similar to RAL 9001), grey-brown air outlet grid
- Delivery form: casing, brick bundles and radiator kit
- VDE approval mark

| Order reference | Ait.-Nr. | Rated power W | Number of brick bundles | Brickbundle type | Size            | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|-------------------------|------------------|-----------------|---------------------------|-----------|--|
| EST 60481 K     | IC260510 | 4800          | Kolli36T                | T60E             | 890x 654 x 360  | 251                       |           |  |
| EST 60601 K     | IC260520 | 6000          |                         |                  | 1040x 654 x 360 | 307                       |           |  |
| EST 75601 K     | IC260530 |               |                         | T75E             | 890x 654 x 360  | 251                       |           |  |
| EST 75751 K     | IC260540 | 7500          |                         |                  | 1040x 654 x 360 | 307                       |           |  |

Depth plus 35 mm wall connection

## PERMATHERM® storage heaters

Connection voltage 3/N/PE ~400 V, 50 Hz

### Hearth design can be integrated



ESK... K with EZK ES

- Hearth design can be panelled with solid kitchen panelling
- High-grade hard-shell core thermal insulation of natural vermiculite with Microtherm®
- Dynamic discharge
- Thermomechanical AC charge controller
- AC control system 230V AC, 80% operating time
- built-in room temperature controller

- ON/OFF switch for "supplementary heating"
- Temperature lowering at night can be remote controlled e.g. using a timer.
- Control panel kitchen white, base grey-brown
- Delivery form: casing, brick bundles and radiator kit
- VDE approval mark

| Order reference | Art.-Nr. | Rated power W | Number of brick bundles | Brickbundle type | Size | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|-------------------------|------------------|------|---------------------------|-----------|--|
| ESK 2419 K      | IC251318 | 1900          | 2                       | Kolli33          | H24E | 450x 840 x 570            | 110       |  |
| ESK 2424 K      | IC251320 | 2400          |                         |                  |      |                           |           |  |

Heightadjustable

## Accessories

### Supplementary kit – hearth storage heater in free-standing



VKE20

Supplementary kit for converting the built-under unit to a stand-alone unit consisting of: front cover, worktop, fixing accessories (worktop height: 40 mm), colour kitchen white.

| Order reference | Art.-Nr. | for device type |
|-----------------|----------|-----------------|
| VKE20           | 317820   | VKD24           |
| EZKES           | IC251314 | ESK24.. K       |

### Two-circuit cylinder kit

With the basic device GH 18 the devices FSD 12C – FSD 36C and VKD 24 can be upgraded to two-circuit storage heaters. With this, the two-circuit system for required for controlled storage heating (GEH) by the EnBW / ODR is made possible.

Key solution:

2/3 of the rated power is switched as  $P_s$  (storage part) and 1/3 of the rated power as  $P_{sf}$  (storage-free part).



GH18

### Supplementary kit two-circuit storage heater

for PERMATHERM® Optima (flat design) F 12E – F 36E and PERMATHERM® hearth storage heater for converting to two-circuit system for controlled electric heating GEH (charge type of the EnBW/ODR).



ESFZKM

| Order reference | Art.-Nr. | for device type                       |
|-----------------|----------|---------------------------------------|
| ESFZKM          | IC260600 | ESF 12.. K – ESF 36.. K<br>ESK 24.. K |

## Integrated room temperature controller



RTID 31 / RTED 30

RTEV 99



ZHi ... E

| Order reference | Ait.-Nr. | für device type  | Features  |  |
|-----------------|----------|--|---|--|
| RTID 31         | 324530   | VFDi 20C – VFDi 70C<br>FSD 12C – FSD 48C<br>VNDi 30C – VNDi 50C<br>VTDi 45C – VTDi 75C | Integrated electronic speed controller (wave packet control), complete kit, can be plugged into the duo charge controller, with switch for "lowering the temperature at night" and switch for "supplementary heating" with control lamps, control panel in control recess, 230 V / 60 VA (fan) / 10 A (supplementary heating), controlling range 8°C to 30°C. |  |
| RTED 30         | 324520   |  | Integrated electronic controller, complete kit, can be plugged into the duo charge controller, with switch for "lowering the temperature at night" and switch for "supplementary heating" with control lamps, control panel in control recess, 230 V / 60 VA (fan) / 10 A (supplementary heating), controlling range 8°C to 30°C.                             |  |
| RTEV 99         | 333990   | VFDi...C & ESS...K<br>FSD...C & ESF...K<br>VNDi...C & ESN...K<br>VTDi...C & EST...K    | Integrated electromechanical controller with thermal feedback, complete universal kit, with ON/OFF switch and switch for "supplementary" heating with control lamps. Control panel in control recess, 230 V / 10 (4) A, controlling range 5°C to 30°C.  |  |

Caution: not for use in combination with water-proofing kits

## Day current supplementary heating

Day current supplementary heating kit for installation in the storage heater. Functions as direct heating if heat is immediately required and the storage heater is uncharged (e.g. transition periods; guestrooms).

Note: An integrated room temperature controller or wall-mounted room temperature controller with switching output "supplementary heating" is required for operation. For installation in Dimplex and PERMATHERM storage heaters.\*

| Order reference | Ait.-Nr. | Rated power W | für device type  |  |
|-----------------|----------|---------------|--|--|
| ZHi 050 E       | 341950   | 500           | S20E<br>F 12E  |  |
| ZHi 070 E       | 341960   | 700           | S 30E – S 70E<br>F 18E – F 48E<br>N 30E – N 50E<br>T 45E – T 75E |  |
| ZHi 110 E       | 341970   | 1100          | S 40E – S 70E<br>F 36E – F 48E<br>N 30E – N 50E<br>T 60E – T 75E |  |
| ZHi 150 E       | 341980   | 1500          | S 50E – S 70E<br>F 48E<br>N 36E – N 50E<br>T 75E                 |  |
| ZHi 200 E       | 341990   | 2000          | S 50E – S 70E<br>N 36E – N 50E<br>T 75E                          |  |

## Day current supplementary heating relay kit

A third of the rated power of the kitchen storage heater is switched to direct heating if instant heat is required and the storage heater is uncharged (e.g. transition periods, guestrooms).



RZ20

| Order reference | Ait.-Nr. | für device type     |
|-----------------|----------|---------------------|
| RZ20            | 315670   | VKD24<br>ESK 24.. K |

## Floor brackets

For installation of electric storage heaters with 10 cm ground clearance, floor mounting, angle adjustable, suitable for skirting board, can be used for deep-pile carpeting, suitable for wall and floor mounting, can be secured against tipping over, fixing accessories (package contents: set = 2 items)



BIOI 25

| Order reference | Ait.-Nr. | für device type                                    | Gassing colour |  |
|-----------------|----------|--|----------------|--|
| BIOI 25         | 328580   | VFDi 20C – VFDi 70C<br>VNDi 30C – VNDi 50C         | bath grey      |  |
| EZBKS           | IC251270 | ESS 20.. K – ESS 70.. K<br>ESN 30.. K – ESN 50.. K | grey-brown     |  |

## Floor brackets



WIO 18

For wall/floor mounting if the brickwork cannot bear loads and for free-standing installation. Painted profile angle with unscrewable ground support and fixing accessories. 10.4 cm ground clearance, (package contents: set = 2 items)

| Order reference | Art.-Nr. | for device type        | Casing colour |
|-----------------|----------|------------------------|---------------|
| WIO 18          | 324470   | FSD12C – FSD 48C       | bath grey     |
| EZ KK F         | IC251133 | ESF12.. K – ESF 48.. K | grey-brown    |



BIO 18

## Ground support for storage heaters

For wall/floor mounting if the brickwork cannot bear heavy loads, used in combination with serial bracket, 10.4 cm ground clearance (package contents: set = 2 items).

| Order reference | Art.-Nr. | for device type        | Casing colour |
|-----------------|----------|------------------------|---------------|
| BIO 18          | 326480   | FSD12C – FSD 48C       | bath grey     |
| EZ BA F         | IC251134 | ESF12.. K – ESF 48.. K | grey-brown    |

## Base plate for storage heaters

Heat-insulating calcium-silicate based base plate prevents pressure marks and discolouration when devices are installed on light-coloured carpeting, temperature-sensitive floor coverings and pressure-sensitive parquet floors.

| Order reference | Art.-Nr. | for device type | Width x Height x Depth<br>mm |
|-----------------|----------|-----------------|------------------------------|
| UPLi20          | 328220   | S20E            | 626x10x260                   |
| UPLi30          | 328230   | S30E            | 776x10x260                   |
| UPLi40          | 328240   | S40E            | 926x10x260                   |
| UPLi50          | 328250   | S50E            | 1076x10x260                  |
| UPLi60          | 328260   | S60E            | 1226x10x260                  |
| UPLi70          | 328270   | S70E            | 1376x10x260                  |
| UPL12           | 324330   | F12E            | 630x10x200                   |
| UPL18           | 324340   | F18E            | 780x10x200                   |
| UPL24           | 324350   | F24E            | 930x10x200                   |
| UPL30           | 324360   | F30E            | 1080x10x200                  |
| UPL36           | 324370   | F36E            | 1230x10x200                  |
| UPL42           | 324380   | F42E            | 1380x10x200                  |
| UPL48           | 324390   | F48E            | 1530x10x200                  |
| UPL 30 N        | 343190   | N30E            | 890x10x260                   |
| UPL 36 N        | 343200   | N36E            | 1040x10x260                  |
| UPL 43 N        | 343210   | N43E            | 1190x10x260                  |
| UPL 50 N        | 343220   | N50E            | 1340x10x260                  |
| UPL45 T         | 338680   | T45E            | 760x10x370                   |
| UPL60 T         | 338690   | T60E            | 910x10x370                   |
| UPL75 T         | 338700   | T75E            | 1060x10x370                  |

## Water-proofing kit



WS 25 i

Enables installation of storage heaters according to VDE regulations. Do not use in combination with special accessories for the integrated room temperature controller. Degree of protection IP X4 (splash water protection).

| Order reference | Ait.-Nr. | for device type |  |
|-----------------|----------|-----------------|--|
| WS 25 i         | 328590   | S20E<br>S 30E   |  |
| BWS 25 N        | 335670   | N30E<br>N 36E   |  |
| TWS 12          | 325850   | F12E            |  |
| TWS 18          | 325860   | F18E            |  |
| TWS 24          | 325870   | F24E            |  |

## Wall fixing bracket



EZ ZW 1

Additional protection against tipping over for electric storage heaters, left.

| Order reference | Ait.-Nr. | for device type                |  |
|-----------------|----------|--------------------------------|--|
| EZ ZW 1         | IC251271 | S 20E – S 70E<br>N 30E – N 50E |  |

## Conversion kit operating time control system



EZ US 8037 2

For electric storage heaters with thermomechanical charge controller for adjustment to 37/40 % operating time control system.

| Order reference | Ait.-Nr. | for device type   |  |
|-----------------|----------|---|--|
| EZ US 8037 2    | IC251198 | ESS ... K<br>ESF ... K<br>ESN ... K<br>EST ... K & ESK 24.. K |  |

## Thermal enable contactor



EZKFS

Thermo relay installation kit for charge enable via safety output control signal (direct control without heating contactor with auxiliary relay)

| Order reference | Ait.-Nr. | for device type  |  |
|-----------------|----------|--|--|
| EZKFS           | IC260610 | ESS ... K<br>ESF ... K<br>ESN ... K<br>EST ... K & ESK ... K |  |

## Rear panelling for Dimplex storage heaters



DRWi ...

For covering the rear of the device in the event of free-standing installation. Colour: traffic white (similar to RAL 9016).

| Order reference | Ait.-Nr. | for device type | Wdth x Height x Depth mm |
|-----------------|----------|-----------------|--------------------------|
| DRWi 20C        | 344370   | VFDi20C         | 562x 627 x 41            |
| DRWi 30C        | 344380   | VFDi30C         | 712x 627 x 41            |
| DRWi 40C        | 344390   | VFDi40C         | 862x 627 x 41            |
| DRWi 50C        | 344400   | VFDi50C         | 1012x 627 x 41           |
| DRWi 60C        | 344410   | VFDi60C         | 1162x 627 x 41           |
| DRWi 70C        | 344420   | VFDi70C         | 1312x 627 x 41           |
| DRW 36NC        | 344440   | VNDi36C         | 1012x 457 x 41           |
| DRW 43NC        | 344450   | VNDi43C         | 1162x 457 x 41           |

## Components storage heaters

### Electronic charge controller



LRD 2000 plus

| Order reference | Art.-Nr. | features   |  |
|-----------------|----------|--|--|
| LRD 2000 plus   | 338830   | Digital electronic DC/AC charge controller with two control inputs for ThermoComfort duo-electronic VFDi..(C), VFD..(C), FSD..(C), VNDi..(C), VTDi..(C), and VKD.. storage heaters, optional connection to DC charge control (0.91–1.43 V) or an AC charge control (AC 230 V, % operating time), with jumper for adjustment of AC control system from 80 % operating time to 72/68 % operating time or to 37/40 % operating time, jumper for selectable switch-off temperatures, plug position 520+ for raising the target charge rate by 5% as compared to the central control unit default, potentiometer 10 kΩ included in the scope of supply. |  |
| LR100           | 338840   | Electronic DC charge controller (control signal DC 0.91–1.43 V) for ThermoComfort electronic VF 20–70, VF 20–70 HY, VN 30/40, VK 24, VF 75, FS 12–36, and FZ 12–36 storage heaters.  |  |
| LR90            | 338850   | Electronic DC charge controller (control signal DC 0.91–1.43 V), replacement device for LR 88 S, LR 50 S, LR 50/300, LR 45 S, LR 60/230, LR 60/300, and RG 6000 charge controllers.  |  |
| KBS12L          | 348870   | Cable harness with 12-pole cable connector for use in combination with LR90 and LR100 DC charge controllers; (potentiometer not included in the scope of supply)   |  |

LR100



### Intensity actuator



P 10 K

| Order reference | Art.-Nr. | features  |  |
|-----------------|----------|---|--|
| P 10 K          | 338860   | Potentiometer (10 kΩ), for storage heaters ThermoComfort duo-electronic (with LRD 2000, LRD 2000 plus charge controllers) and ThermoComfort electronic (with LR 100 charge controller). |  |
| P360            | 338870   | Potentiometer (360 Ω), for storage heaters with electronic charge control (LR 90, LR 88 S, LR 50 S, LR 50/300, LR 45 S, LR 60/230, LR 60/300 and RG 6000 charge controllers).           |  |

### Residual heat sensor



RF2000



RF90

### Thermo relay



THR3

### Radial fan

Radial fan, right, complete for Dimplex and PERMATHERM® storage heaters

| Order reference | Art.-Nr. | device type   |  |
|-----------------|----------|---|--|
| RL15R           | 344960   | S 20(E) – S 40(E)<br>N 30(E) – N 43(E)<br>T 45(E) – T 60(E) |  |
| RL25R           | 344970   | S 50(E) – S 70(E)<br>N 50(E)<br>T 75(E)                     |  |
| RL15RF          | 351880   | F12(E) – F 48(E)  |  |

### Capillary tube charge controller



ALR 80 AC

| Order reference | Art.-Nr. | features  |  |
|-----------------|----------|---|--|
| ALR 80 AC       | 351870   | Thermomechanical AC charge controller (3-pole; 80 % operating time system) for Dimplex VFMi.. and PERMATHERM® ESS.., ESF.., EST.., ESN.., and ESK.. storage heaters |  |

## Radiant panel heater FPE series

### horizontal model

Connection voltage 1/N/PE ~230 V, 50 Hz

Degree of protection IP 20

Protection class I



FPE ... H

Wall mounting using wall bracket, connection cable for fixed connection, high-quality metal casing, aluminium surface heating element, electronic infinitely variable room thermostat, protection against overheating, function switch for ON / OFF / Antifreeze / Lower. Lowering can be centrally regulated using an external regulator e. g. timer Programming using module RMT 2 possible.

| Order reference | Art.-Nr. | Rated power W | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|---------------------------|-----------|--|
| FPE 051 H       | 348740   | 500           | 515x 440 x 112            | 4.3       |  |
| FPE 101 H       | 348750   | 1000          | 620x 440 x 112            | 5.3       |  |
| FPE 151 H       | 348760   | 1500          | 830x 440 x 112            | 7.2       |  |
| FPE 201 H       | 348770   | 2000          | 1040x 440 x 112           | 9.0       |  |

Depth incl. wall clearance

## Radiant panel heater FPE series

### vertical model

Connection voltage 1/N/PE ~230 V, 50 Hz

Degree of protection IP 20

Protection class I



FPE... V

## Natural stone heating

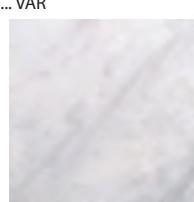
Connection voltage 1/N ~230 V, 50 Hz

Degree of protection IP 25

Protection class II



MP... VAR



MP ... GA



MP ... SYA

Natural stone heating for horizontal or vertical wall mounting using the mounting kit included in the scope of supply, main heat provided by heating pipes integrated in the stone, special pipe routing for especially uniform surface temperature, dual overtemperature protection, connecting cable for fixed connection approx. 1.3 m, must be controlled via external room temperature controller. External room temperature controller **RT 204 U** and **RT 104 ST** suitable for MP natural stone heating.

| Order reference | Art.-Nr. | Type of stone | Rated power W | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|---------------|---------------------------|-----------|--|
| MP35 VAR        | 343860   | Vários        | 350           | 600x 400 x 70             | 21        |  |
| MP65 VAR        | 343870   |               | 650           | 1000x 400 x 70            | 35        |  |
| MP85 VAR        | 343880   |               | 850           | 1000x 500 x 70            | 44        |  |
| MP115 VAR       | 343890   |               | 1150          | 1000x 600 x 70            | 52        |  |
| MP145 VAR       | 343900   |               | 1450          | 1250x 600 x 70            | 62        |  |
| MP 35 GA        | 343910   | Galaxis       | 350           | 600x 400 x 70             | 21        |  |
| MP 65 GA        | 343920   |               | 650           | 1000x 400 x 70            | 35        |  |
| MP 85 GA        | 343930   |               | 850           | 1000x 500 x 70            | 44        |  |
| MP 115 GA       | 343940   |               | 1150          | 1000x 600 x 70            | 52        |  |
| MP 145 GA       | 343950   |               | 1450          | 1250x 600 x 70            | 62        |  |
| MP 35 SYA       | 343960   | Sylvia Antik  | 350           | 600x 400 x 70             | 21        |  |
| MP 65 SYA       | 343970   |               | 650           | 1000x 400 x 70            | 35        |  |
| MP 85 SYA       | 343980   |               | 850           | 1000x 500 x 70            | 44        |  |
| MP 115 SYA      | 343990   |               | 1150          | 1000x 600 x 70            | 52        |  |
| MP 145 SYA      | 344000   |               | 1450          | 1250x 600 x 70            | 62        |  |

Natural stone heaters are unique natural products. Variations in colour and structure compared to the picture are therefore a sign of individuality.

## Design wall convector GFP series

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP X4  
Protection class I



GFP 200 B



GFP200 W

Design convector with precise electronic room temperature regulation, infinitely adjustable +5 °C to +30 °C, antifreeze setting, connecting lead for fixed connection, high-grade metal casing with easy-care glass front, ON/OFF switch, temperature lowering using a programming module or external control of the control line possible, e. g. using a timer, switch etc., protection against overheating, fold-down wall support. Programming is possible using module RMT 2.

| Order reference | Art.-Nr. | Rated power W | Casing colour | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|---------------|---------------------------|-----------|--|
| GFP 200 B       | 356180   | 2000          | black         | 940x 565 x 107            | 19.4      |  |
| GFP200 W        | 356170   |               | white         |                           |           |  |

Depth incl. wall clearance

## Wall convectors KSE series

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 21  
Protection class I



KSE...

Wall mounting using a wall bracket, connection cable for fixed connection, high-grade metal casing, alu finned heating element, electronic infinitely variable room thermostat 7 °C to 29 °C, protection against overheating, function switch for ON / OFF/ Antifreeze / Lowering, lowering also centrally using external controls e. g. a timer. Programming using module **RMT 2** possible.

| Order reference | Art.-Nr. | Rated power W | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|---------------------------|-----------|--|
| KSE100          | 335320   | 1000          | 420x 430 x 105            | 4.2       |  |
| KSE150          | 335340   | 1500          | 580x 430 x 105            | 5.5       |  |
| KSE200          | 335360   | 2000          | 740x 430 x 105            | 6.6       |  |

## Low profile panel convectors KLE series

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 21  
Protection class I



KLE...

Wall mounting using wall bracket, connection cable for fixed connection, high-quality metal casing, aluminium finned heating element, electronic infinitely variable room thermostat 7 °C, protection against overheating, function switch for ON / OFF/ Antifreeze / Lower. Lowering can be centrally regulated using an external regulator e. g. timer. Programming using module **RMT 2** possible.

| Order reference | Art.-Nr. | Rated power W | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|---------------------------|-----------|--|
| KLE075          | 335380   | 750           | 820x 220 x 105            | 4.7       |  |
| KLE125          | 335390   | 1250          | 1060x 220 x 105           | 5.9       |  |
| KLE150          | 337960   | 1500          | 1300x 220 x 105           | 7.1       |  |

## Programming cassette RMT

incl. master function



RMT 2

| Order reference | Art.-Nr. | Features   |  |
|-----------------|----------|--|--|
| RMT 2           | 362920   | Programming cassette connectable to radiant panel heaters and convectors of the GPE, GFP, FPE, EPX, KSE and KLE series. Clearly laid out LC Display; seven specified programs and an individual program to set the heating and lowering times. Each day of the week can have one of the programs assigned to it. Where several ecocomfort devices are used together with a common control line, a programming cassette can be used to control up to 20 devices simultaneously. |  |

## Wall convectors EPX series electronically regulated

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP X4  
Protection class I



EPX 2000

Precise electronic room temperature control, infinitely variable from 5°C to 30°C, antifreeze setting, connection cable for fixed connection, ON/OFF switch, temperature lowering using a programming module or external control of the control line e. g. timer or switch possible. Protection against overheating, fold-down wall bracket, high-quality metal casing.

| Order reference | Ait.-Nr. | Rated power W | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|---------------------------|-----------|--|
| EPX 500         | 351530   | 500           | 448x 430 x 115            | 4.8       |  |
| EPX 750         | 351540   | 750           | 618x 430 x 115            | 6.2       |  |
| EPX 1000        | 351550   | 1000          |                           |           |  |
| EPX 1500        | 351560   | 1500          | 686x 430 x 115            | 6.6       |  |
| EPX 2000        | 351570   | 2000          | 858x 430 x 115            | 8.0       |  |
| EPX 2500        | 351580   | 2500          | 858x 430 x 145            | 8.5       |  |

## Programming cassette EPX, GFP, SRX convectors



RX PW 1

RXTI RB

| Order reference | Ait.-Nr. | Features  |  |
|-----------------|----------|---|--|
| RXTI 24         | RXTI24   | 24h programming cassette with LC display, connectable to EPX wall convectors. Four IN and OUT times freely programmable, lit display, key lock. Where several EPX devices are connected using a control line, a programming cassette can be used to control these devices simultaneously. Similarly, devices from the FPE, GPE, GFP, KSE and KLE series can be connected to the control line.   |  |
| RX PW 1         | RXPW1    | Weekly programming cassette with LC display, connectable to EPX wall convectors, up to four programs can be set for a weekend block (Sat-Sun) or a workday block (Mon-Fri), the IN and OUT switch times are set, with lit display and key lock. Where several EPX devices are connected using a control line, a programming cassette can be used to control these devices simultaneously. Similarly, devices from the FPE, GPE, GFP, KSE and KLE series can be connected to the control line. |  |
| RXTI RB         | RXTIRB   | Limited specified heating periods; programming cassette for setting a heating period from 0.5 – 4.0 hours, adjustable in 0.5 hour steps, when the specified heating period ends, the device shuts off or turns to antifreeze mode. Where several EPX devices are connected using a control line, a programming cassette can be used to control these devices simultaneously. Similarly, devices from the FPE, GPE, GFP, KSE and KLE series can be connected to the control line.              |  |

## Wall convectors PLX series

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP X4  
Protection class I



PLX2000

High-quality metal casing, connection cable with connector, infinitely variable room thermostat 5°C to 30°C, ON/OFF switch, 2 heating levels (not for PLX 500), controller cover, protection against overheating, fold-down wall support.

| Order reference | Ait.-Nr. | Rated power W | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|---------------------------|-----------|--|
| PLX500          | 351450   | 500           | 448x 430 x 115            | 4.8       |  |
| PLX750          | 351460   | 750           | 618x 430 x 115            | 6.2       |  |
| PLX1000         | 351470   | 1000          |                           |           |  |
| PLX1500         | 351480   | 1500          | 686x 430 x 115            | 6.6       |  |
| PLX2000         | 351490   | 2000          | 858x 430 x 115            | 8.0       |  |
| PLX2500         | 351500   | 2500          |                           | 8.5       |  |
| PLX3000         | 351510   | 3000          | 858x 430 x 145            | 8.6       |  |

## Wall convectors PLX series with timer

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 20  
Protection class I



PLX2000 TI

High-grade metal casing, connection cable with plug, infinitely variable room thermostat 5°C to 30°C, ON/OFF switch, 2 heating levels, controls cover, protection against overheating, removable fold-down wall support. With mechanical 24-hour timer.

| Order reference | Ait.-Nr. | Rated power W | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|---------------------------|-----------|--|
| PLX2000 TI      | 351520   | 2000          | 858x 430 x 115            | 8.0       |  |

## Wall convectors DXW series

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 20  
Protection class I



DXW 330

Infinitely variable thermostat, fold-down wall bracket, sheet-steel casing, connection cable for fixed connection, ON/OFF switch, 2 heating levels, (DXW 315 to DXW 330).

| Order reference | Ait.-Nr. | Rated power W | Width x Height x Depth mm | Weight kg |
|-----------------|----------|---------------|---------------------------|-----------|
| DXW 307         | 342990   | 750           | 577x 367 x 124            | 4.4       |
| DXW 310         | 343000   | 1000          |                           |           |
| DXW 315         | 343010   | 1500          |                           |           |
| DXW 320         | 343020   | 2000          |                           |           |
| DXW 325         | 343030   | 2500          |                           |           |
| DXW 330         | 343040   | 3000          | 697x 367 x 124            | 5.1       |

## Free-standing convectors ECW series

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 20  
Protection class I



ECW 934

Infinitely variable thermostat, 2 heating levels, indicator lamp, connection cable with plug, wall mounting with accompanying accessories possible.

| Order reference | Ait.-Nr. | Rated power W | Features                        | Width x Height x Depth mm | Weight kg |
|-----------------|----------|---------------|---------------------------------|---------------------------|-----------|
| ECW 934         | 343050   | 2000          | With fan level, cold air level. | 577x 432 x 205            | 4.1       |
| ECW 937 T       | 343060   |               |                                 |                           |           |

Depth for wall mounting: 90 mm

ECW 937 T

## Bathroom fan heater

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 24  
Protection class I



EF12/20

Solid sheet-steel casing, infinitely variable room thermostat, protection against overheating, antifreeze mode, connection cable with plug.

| Order reference | Ait.-Nr. | Rated power W | Features                                    | Width x Height x Depth mm | Weight kg |
|-----------------|----------|---------------|---|---------------------------|-----------|
| EF12/20         | 357050   | 2000          | With 60-minute timer<br>With 24-hour timer. | 300x 405 x 120            | 3.2       |
| EF12/20 TI      | 357060   |               |   |                           | 3.3       |
| EF12/20 TID     | 357070   |               |   |                           | 3.2       |
| EF12/10         | 358710   | 1000          |   |                           |           |

EF12/20 TI

## Towel dryer combined with bathroom fan heater

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 20  
Protection class I



TRFW201

Combination of radiant panel heater, towel dryer and bathroom fan heater, electronic room thermostat, electronic timer for ventilation operation 0.5 h / 1.0 h / 2.0 h, protection against overheating, lint filter, indicator lamp for heating operation, connection cable for fixed connection, temperature lowering possible via external control of the control line e. g. timer, infinitely variable hangers with optional left or right mounting.

| Order reference | Ait.-Nr. | Rated power W | Width x Height x Depth mm | Weight kg |
|-----------------|----------|---------------|---------------------------|-----------|
| TRFW101         | 348710   | 1000          | 431x 1058 x 173           | 17.5      |
| TRFW151         | 348720   | 1500          |                           |           |
| TRFW201         | 348730   | 2000          |                           |           |

Device depth without hanger; hanger depth 65 – 95 mm  
phase out:

## Towel dryer/bathroom fan heater TRFB

Connection voltage 1/N ~230 V, 50 Hz  
Degree of protection IP 24  
Protection class II



TRFB150

Combination of radiant panel heater, towel dryer and bathroom fan heater, electronic room thermostat, electronic timer for ventilation operation 0.5 hour / 1.0 hour / 2.0 hours, protection against overheating, lint filter, indicator lamp for heating operation, connection cable for fixed connection, temperature lowering via external control of the control line e.g. a timer possible.

| Order reference | Ait.-Nr. | Rated power W | Width x Height x Depth mm | Weight kg |
|-----------------|----------|---------------|---------------------------|-----------|
| TRFB150         | 354900   | 1500          | 470x 1010 x 267           | 13        |

Dimensions without hanger (W x H x D) in mm: 440 x 1010 x 121

## Towel dryers DTR series

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 24  
Protection class I



DTR 350 C



DTR 350 W

Dry heating element for short heat-up time, connecting line with plug and ON/OFF switch, cable connection on the right, protection against overheating, without an integrated thermostat.

| Order reference | Ait.-Nr. | Rated power W | Casing colour | Width x Height x Depth mm | Weight kg |
|-----------------|----------|---------------|---------------|---------------------------|-----------|
| DTR 350 C       | 354860   | 300           | chromed       | 602x 843 x 115            | 7.9       |
| DTR 350 W       | 354850   | 350           |               |                           |           |
| DTR 500 W       | 360010   | 450           | white         | 602x 1406 x 115           | 15.7      |

## Wall-mounted fan heater with pull switch

Connection voltage 1/N ~230 V, 50 Hz  
Degree of protection IP 22  
Protection class II



FX20 V

2-level control, downwards air outlet, thermostat adjustable in the device with 3 temperature positions, fixed connection, 1 kW / 2 kW connected load can be chosen on the device, protection against overheating, white plastic casing.

| Order reference | Ait.-Nr. | Rated power W | Width x Height x Depth mm | Weight kg |
|-----------------|----------|---------------|---------------------------|-----------|
| FX20 V          | 342490   | 2000          | 229x 242 x 109            | 1.4       |

## Unique wall convectors

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 24  
Protection class I



2NC8 102 4S

To be mounted using a wall bracket with outlet for fixed connection, electronic thermostat, lowering using control line or radio module, high-quality aluminium finned heating element, galvanised and powder-coated casing, colour white similar to RAL 9010, On/Off switch.

| Order reference | Ait.-Nr.  | Rated power W | Width x Height x Depth mm | Weight kg |
|-----------------|-----------|---------------|---------------------------|-----------|
| 2NC8 102 4S     | 2NC81024S | 1000          | 735x 400 x 80             | 5.1       |
| 2NC8 202 4S     | 2NC82024S | 2000          | 1365x 400 x 80            | 9.6       |

## Low-temperature wall convectors Unique

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 21  
Protection class I



Wall convector with reduced surface temperature of approx. 60°C, to be mounted using a wall bracket with outlet for a fixed connection, electronic thermostat, lowering via control line or radio module, high-quality aluminium finned heating element, powder-surfaced casing. Colour: white. Similar to RAL 9010, On/Off switch.

| Order reference | Ait.-Nr.  | Rated power W | Width x Height x Depth mm | Weight kg |
|-----------------|-----------|---------------|---------------------------|-----------|
| 2NC8 062 4B     | 2NC80624B | 600           | 915x 400 x 80             | 6.9       |
| 2NC8 102 4B     | 2NC81024B | 1000          | 1455x 400 x 80            | 11.1      |

## Unique wall convectors

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 21  
Protection class I



2NC8 082 4F

To be mounted using a wall bracket with outlet for fixed connection, electronic thermostat, lowering using control line or radio module, high-quality aluminium finned heating element, powder-coated casing, colour white similar to RAL 9010, On/Off switch.

| Order reference | Ait.-Nr.  | Rated power W | Width x Height x Depth mm | Weight kg |
|-----------------|-----------|---------------|---------------------------|-----------|
| 2NC8 062 4F     | 2NC80624F | 600           | 555x 400 x 80             | 4.0       |
| 2NC8 102 4F     | 2NC81024F | 1000          | 735x 400 x 80             | 5.1       |
| 2NC8 152 4F     | 2NC81524F | 1500          | 1095x 400 x 80            | 7.8       |
| 2NC8 202 4F     | 2NC82024F | 2000          | 1365x 400 x 80            | 9.6       |

## Unique wall convectors

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 21  
Protection class I

### without thermostat

To be mounted using a wall bracket with outlet for fixed connection, without thermostat, high-quality aluminium finned heating element, powder-coated, colour white similar to RAL 9010, On/Off switch.

| Order reference | Ait.-Nr.  | Rated power W | Width x Height x Depth mm | Weight kg |
|-----------------|-----------|---------------|---------------------------|-----------|
| 2NC8 042 4X     | 2NC80424X | 400           | 465x 400 x 80             | 3.4       |

phaseout

## Unique low profile panel convectors

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 21  
Protection class I



2NC8 ... 4X

To be mounted using a wall bracket with outlet for fixed connection, electronic thermostat, lowering using control line or radio module, high-quality aluminium finned heating element, powder-coated casing, colour white similar to RAL 9010, On/Off switch.

| Order reference | Ait.-Nr.  | Rated power W | Width x Height x Depth mm | Weight kg |
|-----------------|-----------|---------------|---------------------------|-----------|
| 2NC8 062 2F     | 2NC80622F | 600           | 915x 200 x 80             | 3.8       |
| 2NC8 102 2F     | 2NC81022F | 1000          | 1275x 200 x 80            | 5.3       |
| 2NC8 152 2F     | 2NC81522F | 1500          | 1725x 200 x 80            | 7.0       |

## Radiant panel heaters



2NW5 ... 4F

Connection voltage 1/N/PE ~230 V, 50 Hz

Degree of protection IP 21

Protection class I

Flat radiators with encapsulated tubular radiator for a uniform surface temperature and heat transfer as radiant heat, electronic room thermostat with temperature lowering using a control line or an optional radio module, controlling range 5 °C to 30 °C, antifreeze setting, wall bracket with outlet, connected with a fixed connection, ON / OFF switch, powder-coated casing, colour white, similar to RAL 9010.

| Order reference | Alt.-Nr.  | Rated power W | Width x Height x Depth mm | Weight kg |
|-----------------|-----------|---------------|---------------------------|-----------|
| 2NW5 042 4F     | 2NW50424F | 400           | 780x 400 x 60             | 5.4       |
| 2NW5 062 4F     | 2NW50624F | 600           | 1060x 400 x 60            | 7.6       |
| 2NW5 082 4F     | 2NW50824F | 800           | 1400x 400 x 60            | 9.1       |

Depth incl. wall clearance

## Special accessories for direct heating devices

### 2NC8 ... series, 2NW5 ... series



2NC9812

| Order reference | Alt.-Nr. | Features  |
|-----------------|----------|---|
| 2NC9812         | 2NC9812  | Time control module for 2NC8... and 2NW5...devices with built-in thermostat for automatic temperature lowering of the Unique convectors. 15 fixed defined programs, 10 of which are for the living area and 5 for holiday homes |
| 2NC9813         | 2NC9813  | Lowering module for devices of the 2NC8 and 2NW5 series with a built-in thermostat for manual temperature lowering.   |
| 2NC9408         | 2NC9408  | Slave module for controlling convectors without individual controller (2NC8...-4X). Master device with integrated room temperature controller required e.g.. 2NC8...-4S/-4F.  |
| 2NC9810         | 2NC9810  | Cover for the thermostat for devices 2NC8...series with room temperature controller   |
| 2NC9811         | 2NC9811  | Supporting feet for free-standing installation of low profile panel convectors of the 2NC8...-2 series (2 units)  |

## Radio control DigiHeat



2NC9860



2NC9825



2NC9839



2NC9840

| Order reference | Alt.-Nr. | Features  |
|-----------------|----------|---|
| 2NC9860         | 2NC9860  | Programmable zone regulation weekly program. Wireless remote control using a wireless signal. 6 zones can be controlled independently of one another. Weekly programming, shortest switching time 1h, where necessary comfort temperature and lowering temperature can be chosen independently of the program using a rotary encoder, holiday-mode. |
| 2NC9822         | 2NC9822  | Digi Heat – wireless receiver for Unique convectors of the 2NC8 and 2NW5 series with thermostat.  |
| 2NC9825         | 2NC9825  | Digi Heat – wireless relay receiver for switching ON/OFF of electric consumers via a wireless signal, switching contact 16A, surface mounting, connection of the consumer via a plug.   |
| 2NC9839         | 2NC9839  | Digi Heat – wireless relay receiver for switching ON/OFF of electric consumers via a wireless signal, switching contact 16A, flush mounted design for fixed connection of the consumer  |
| 2NC9840         | 2NC9840  | DigiHeat wireless thermostat: Electronic thermostat with receiver for the control of electric under-floor heating, switching contact 16A, flush-mounting version for fixed connection of the consumer, including temperature sensor and/or floor temperature sensor   |

## Industrial fan heaters IHP series

Degree of protection IP 24  
Protection class I

### portable

Fan heaters in metal design with carrying handle for portable use. Controls integrated directly in the device, room temperature control with antifreeze setting, wall mounting using the accompanying wall bracket in not easily reachable heights possible. Casing colour blue, air outlet grid black.



IHP30

| Order reference | Art.-Nr. | Rated power W | Type of plug | Number of fan levels | Air volume flow m³/h | Max. temperature increase K | Width x Height x Depth mm | Weight kg |     |
|-----------------|----------|---------------|--------------|----------------------|----------------------|-----------------------------|---------------------------|-----------|-----|
| IHP30           | 348540   | 3000          | Euro-plug    | 2                    | 300                  | 38                          | 385x390 x 260             | 6.1       |     |
| IHP50           | 348550   | 5000          | CEE 6 A      |                      | 450                  | 58                          |                           |           | 7.4 |

## Industrial fan heaters CFH series

Connection voltage 3/N/PE ~400 V, 50 Hz

Degree of protection IP 20  
Protection class I

### wall-mounted

Robust metal/plastic design for wall mounting, wall bracket with universal turn and pivot options, controlled using an external wall mountable operating panel CFCH. Up to 7 CFH devices can be connected in series via control panel. The connections between the fan heater and the control panel as well as between the devices are established using a standard data cable type CAT 5 (not included in the scope of supply). Colour white, air outlet grid black.



CFH60

| Order reference | Art.-Nr. | Rated power W | Air volume flow m³/h | Max. temperature increase K | Sound pressure level in 3 m dB (A) | Width x Height x Depth mm | Weight kg |      |
|-----------------|----------|---------------|----------------------|-----------------------------|------------------------------------|---------------------------|-----------|------|
| CFH60           | 351330   | 6000          | 900                  | 39                          | 60                                 | 386x360x630               | 12.7      |      |
| CFH90           | 351340   | 9000          | 850                  | 52                          |                                    |                           |           |      |
| CFH120          | 351350   | 12000         |                      | 61                          |                                    |                           |           | 13.8 |

Control panel CFCH is an essential accessory

## Control panel CFCH for CFH industrial fan heater



CFCH

| Order reference | Art.-Nr. | Features   |  |
|-----------------|----------|--|--|
| CFCH            | 351360   | Digital control panel for CFH industrial fan heater, lit LC display, room temperature regulation from 5 °C to 35 °C, antifreeze feature, cold air level, up to 32 individually set programs, programming of a limited operating time of max. 5 hours, serial connection up to 7 CFH devices using a simple plug connection CAT 5, CAT 5 E, CAT 6 standard data cable (not supplied). |  |

## Fan heater metal casing



HL185



HL185 T

| Order reference | Art.-Nr. | Rated power W | Features   | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|--|---------------------------|-----------|--|
| HL185/2         | 335790   | 2000          | OFF / Cold / 2000 W, radial blower, protection against overheating, indicator lamp, wall device, 2/PE ~ 400 V, fixed connection, colour anthracite.                              | 230x230x160               | 4.6       |  |
| HL185 T         | 335780   |               | OFF / Cold / 2000 W, thermostat, radial blower, protection against overheating, indicator lamp, wall device, connection cable with plug, colour anthracite. 1/N/PE ~230 V, 50 Hz |                           |           |  |
| HL185/3         | 335960   |               | OFF / Cold / 700 W, thermostat, radial blower, protection against overheating, indicator lamp, wall device, connection cable with plug, colour anthracite. 1/N/PE ~230 V, 50 Hz  |                           |           |  |

**Air Curtains AC...N series**

Connection voltage 1/N/PE ~230 V, 50 Hz

Degree of protection IP 20

Protection class I

**Electric operation**

AC ... N

Mounting above doors or on ceilings, adjustable air output direction, 2 heating levels, 1 cold air level. Controllable on the device itself or with a remote control (only AC 3RN) only. Door width covered adjustable from 600 mm (AC 3 and AC 45) to 900 mm (AC 6).

| Order reference | Art.-Nr. | Rated power W | Air volume flow m³/h | Max. temperature increase K | Sound pressure level in 3 m dB (A) | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|----------------------|-----------------------------|------------------------------------|---------------------------|-----------|--|
| AC 3 N          | 348220   | 3000          | 212                  | 42                          | 50                                 | 605x 214 x 135            | 5.1       |  |
| AC 45 N         | 348230   | 4500          | 248                  | 53                          | 52                                 |                           | 5.2       |  |
| AC 6 N          | 348240   | 6000          | 446                  | 40                          | 57                                 |                           | 7.2       |  |
| AC 3 RN         | 348250   | 3000          | 212                  | 42                          | 50                                 | 605x 214 x 135            | 5.3       |  |

**Air barrier CAB series**

Connection voltage 3/N/PE ~400 V, 50 Hz

Protection class I

**Electric operation**

CAB 10 EV2

Mounting above doors, ceilings or hidden (optional installation kit needed), modular design allows simple placing of devices in a row, adjustable direction of flow, 2 heating levels, cold air level, 2 ventilation levels, controllable using wall-mounted low-voltage control or by connecting to a building management system. A separate control panel allows regulation of up to 10 devices at a time, optional door sensor switching. Essential accessories: CAB C5 controlsAccessories for combining up to 4 devices: connection set CAB M1 V2; Colour white, intake grid black

| Order reference | Art.-Nr. | Rated power W | Air volume flow m³/h | Max. temperature increase K | Sound pressure level in 3 m dB (A) | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|----------------------|-----------------------------|------------------------------------|---------------------------|-----------|--|
| CAB10EV2        | 117984   | 9000          | 1200                 | 44                          | 54                                 | 1057x 262 x 316           | 25        |  |
| CAB15EV2        | 117991   | 13500         | 1800                 |                             | 55                                 | 1557x 262 x 316           | 36        |  |

**Air barrier DAB series**

Connection voltage 3/N/PE ~400 V, 50 Hz

Protection class I

**Electric operation**

DAB 10 EV2

Mounting above doors, ceilings or hidden (optional installation kit needed), modular design allows simple placing of devices in a row, adjustable direction of flow, 2 heating levels, cold air level, 2 ventilation levels, controllable using wall-mounted low-voltage control or by connecting to a building management system. A separate control panel allows regulation of up to 10 devices at a time, optional door sensor switching. Essential accessories: CAB C5 controls. Accessories for combining up to 4 devices: connection set CAB M1 V2; Colour white, intake grid black

| Order reference | Art.-Nr. | Rated power W | Air volume flow m³/h | Max. temperature increase K | Sound pressure level in 3 m dB (A) | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|----------------------|-----------------------------|------------------------------------|---------------------------|-----------|--|
| DAB 10E V2      | 118004   | 12000         | 3000                 | 23                          | 58                                 | 1060x 360 x 390           | 39        |  |
| DAB 15E V2      | 118011   | 18000         | 4000                 | 26                          | 59                                 | 1560x 360 x 390           | 50        |  |

**Air barrier CAB series**

Connection voltage 1/N/PE ~230 V, 50 Hz

Protection class I

**hot water operation**

CAB 10 WV2

DHW operation, mounting above doors, on ceilings or hidden (optional installation kit needed), modular design allows simple placing of devices in a row, mounting height up to 2.7 m, adjustable direction of flow, 2 ventilator levels, controllable using wall-mounted low-voltage control or by connecting to a building management system. A separate control panel allows regulation of up to 10 devices at a time, optional door sensor switching. BEAB certification Essential accessories: CAB C 6 operator control; for combining several CAB M1 V2 devices. The connections between the operator panel and the hot-air curtains and between the devices are established using a standard data cable (type CAT 5 or higher) – data cable not included in the scope of supply!

Colour white, intake grid black

| Order reference | Art.-Nr. | Rated power W | Air volume flow m³/h | Max. temperature increase K | Sound pressure level in 3 m dB (A) | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|----------------------|-----------------------------|------------------------------------|---------------------------|-----------|--|
| CAB10W V2       | 118028   | 8500          | 1100                 | 23                          | 53                                 | 1057x 262 x 316           | 25        |  |
| CAB15W V2       | 118035   | 12700         | 1700                 | 22                          | 54                                 | 1557x 262 x 316           | 36        |  |

Rated output at 20°C air intake temperature Rated output at 80°C flow temperature and 60°C return flow temperature

**Air barrier DAB series**

Connection voltage 1/N/PE ~230 V, 50 Hz

Protection class I

**hot water operation**

DAB 10 W V2

DHW operation, mounting above doors, on ceilings or hidden (optional installation kit needed), modular design allows simple placing of devices in a row, mounting height up to 4.0 m, adjustable direction of flow, 2 ventilator levels, controllable using wall-mounted low-voltage control or by connecting to a building management system. A separate control panel allows regulation of up to 10 devices at a time, optional door sensor switching. BEAB certification Essential accessories: CAB C 6 operator control; for combining several CAB M1 V2 devices. The connections between the operator panel and the hot-air curtains and between the devices are established using a standard data cable (type CAT 5 or higher) – data cable not included in the scope of supply!

Colour white, intake grid black

| Order reference | Ait.-Nr. | Rated power W | Air volume flow m <sup>3</sup> /h | Max. temperature increase K | Sound pressure level in 3 m dB (A) | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|-----------------------------------|-----------------------------|------------------------------------|---------------------------|-----------|--|
| DAB 10W V2      | 118042   | 13200         | 2500                              | 15                          | 57                                 | 1060x 360 x 390           | 39        |  |
| DAB 15W V2      | 118059   | 18100         | 3500                              |                             | 58                                 | 1560x 360 x 390           | 50        |  |

Rated output at 20°C air intake temperature Rated output at 80°C flow temperature and 60°C return flow temperature

**Accessories for air barrier CAB-DAB series**

CABC5

| Order reference | Ait.-Nr. | Features   |  |
|-----------------|----------|--|--|
| CABC5           | 117960   | Wall-mounted controls for remote control of up to 10 DAB..E / CAB..E V2 hot-air curtains, ON/OFF switch, rotary switch for half/full ventilator output, heating output OFF/Half/Full, Manual/Automatic mode.     |  |
| CABC6           | 117977   | Wall-mounted operator panel for remote control of up to 10 water-bearing CAB .. W V2 / DAB ..W V2 hot-air curtains. Rotary switch for setting the fan level and switch for automatic/manual operation switching. |  |
| CABM1 V2        | 118103   | Connection kit for electrical and mechanical connection of hot-air curtains of the CAB / DAB series.   |  |
| CAB KT 10       | 348830   | Installation kit for hidden installation (e.g. false ceilings) for CAB 10 E / CAB 10 W   |  |
| CAB KT 15       | 348840   | Installation kit for hidden installation (e.g. false ceilings) for CAB 15 E / CAB 15 W   |  |
| DAB KT 10       | 348850   | Installation kit for hidden installation (e.g. false ceilings) for DAB 10 E / DAB 10 W   |  |
| DAB KT 15       | 348860   | Installation kit for hidden installation (e.g. false ceilings) for DAB 15 E / DAB 15 W   |  |

**Handdryer**

| Order reference | Art.-Nr. | Rated power W | Features   | Wdth x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|--|--------------------------|-----------|--|
| HD 701 AM       | 354760   | 2250          | Robust metal casing with epoxy coating, colour white, similar to RAL 9010, infrared safety proximity switch with adjustable sensitivity, rated air flow 470 m3/h with approx. 96 km/h, air outlet temperature approx. 53 °C, heat output 2000 W, motor power 250 W, fixed connection, protection class I, degree of protection IP 23, safety temperature limiter, VDE certification                                  | 276x 245 x 210           | 4.7       |  |
| HD 601 AM       | 354770   | 1640          | Sheet-steel casing 1.9mm with epoxy coating, colour white, similar to RAL 9010, infrared safety proximity switch with adjustable sensitivity, rated air flow 280 m3/h with approx. 65 km/h, air outlet temperature approx. 52 °C, heat output 1500 W, motor power 140 W, fixed connection, protection class II, degree of protection IP 21, safety temperature limiter, VDE certification                            | 255x 302 x 140           | 4.5       |  |
| HD 501 AK       | 354780   |               | Plastic casing made of 3 mm ABS, colour white, similar to RAL 9010, infrared safety proximity switch with adjustable sensitivity, rated air flow 280 m3/h with approx. 65 km/h, air outlet temperature approx. 52 °C, heat output 1500 W, motor power 140 W, fixed connection, protection class II, degree of protection IP 21, safety temperature limiter, VDE certification  | 253x 302 x 153           | 3.0       |  |
| HD 201 AK       | 354790   | 1100          | Compact dimensions and high dry output, plastic casing made of 3 mm ABS, colour white, similar to RAL 9010, infrared safety proximity switch with adjustable sensitivity, rated air flow 110 m3/h with approx. 85 km/h, air outlet temperature approx. 47 °C, heat output 950 W, motor power 150 W, fixed connection, protection class II, degree of protection IP 23, safety temperature limiter, VDE certification | 145x 258 x 138           | 1.2       |  |

phase out: HD 201 AK

## Radiant panel heaters WW... series

Connection voltage 1/N ~230 V, 50 Hz  
Degree of protection IP 24  
Protection class II



WW 150



WW 200

Free-standing installation on casters, or wall-mounted. Metal heating plate, mech. thermostat, antifreeze, protection against overheating, indicator lamp for heating operation, colour white, splash water protection, TÜV GS certification.

| Order reference | Art.-Nr.  | Rated power W | Features                                | Width x Height x Depth mm | Weight kg |  |
|-----------------|-----------|---------------|---|---------------------------|-----------|--|
| WW 100          | AKO150611 | 1000          | Performance levels: OFF / 0.65 / 1.0 kW | 620x 560 x 250            | 6.7       |  |
| WW 150          | AKO150615 | 1500          | Performance levels: OFF / 1.0 / 1.5 kW  | 930x 560 x 250            | 9.5       |  |
| WW 200          | AKO150620 | 2000          | Performance levels: OFF / 1.3 / 2.0 kW  | 1170x 560 x 250           | 12.1      |  |

## Free-standing convectors

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 20  
Protection class I



K811



K821

| Order reference | Art.-Nr. | Rated power W | Features  | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|---|---------------------------|-----------|--|
| K811            | 358050   | 2000          | Free-standing convector with freely adjustable thermostat, two performance levels, 1.0 and 2.0 kW, indicator lamp for heating operation, connection line approx. 1.0 m with plug, wall mounting possible using the accessories provided.                                  | 575x 418 x 200            | 4.1       |  |
| K821            | 358060   |               | Free-standing convector with turbo blower and cold air level, freely adjustable thermostat, two performance levels, 1.0 and 2.0 kW, indicator lamp for heating operation, connection line approx. 1.0 m with plug, wall mounting possible using the accessories provided. |                           |           |  |

## Column radiators

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 20  
Protection class I

### Oil-free

Finned radiator with castors, oil-free design with shortened heat-up time, indicator lamp for heating operation, protection against overheating.



RD909 TS



RD911 TS

| Order reference | Art.-Nr. | Rated power W | Features  | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|---|---------------------------|-----------|--|
| RD909 TS        | 352470   | 2000          | 9 fins, three control levels OFF / 1.4 / 2.0 kW, colour silver grey/anthracite.   | 515x 620 x 245            | 8.7       |  |
| RD911 TS        | 352480   | 2500          | 11 fins, three control levels OFF / 1.7 / 2.0 kW, colour silver grey / anthracite | 610x 620 x 245            | 10.6      |  |

## Infrared heater (compact range)



BS 1201 S

BS 1801 S

BS 1801 W

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 24  
Protection class I

Infrared heaters (compact range) with quartz heating elements for horizontal wall mounting, switchable via a pull switch on the device, pivoting angle 0° – 40°, fixed connection, VDE certification.

| Order reference | Art.-Nr. | Rated power W | Number of heating elements | Features   | Width x Height x Depth mm | Weight kg |  |  |
|-----------------|----------|---------------|----------------------------|--|---------------------------|-----------|--|--|
| BS 1201 S       | 356650   | 1200          | 2                          | Three control levels OFF / 0.6 / 1.2 kW, colour silver.      | 526x 140 x 92             | 1.6       |  |  |
| BS 1801 S       | 356640   | 1800          |                            | Four control levels OFF / 0.6 / 1.2 / 1.8 kW, colour silver. |                           |           |  |  |
| BS 1801 W       | 356630   |               |                            | Four control levels OFF / 0.6 / 1.2 / 1.8 kW, colour white.  |                           | 1.7       |  |  |

## Infrared heaters (low profile range)



BK1201S

BK 2001 S

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 24  
Protection class I

Infrared heaters (low profile range) with quartz heating elements for horizontal installation, switchable via a cord switch on the device, pivoting angle 0° – 40°, fixed connection, VDE certification.

| Order reference | Art.-Nr. | Rated power W | Number of heating elements | Features   | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|----------------------------|--|---------------------------|-----------|--|
| BK 1201 S       | 356670   | 1200          | 1                          | Two control levels OFF / 1.2 kW, colour silver.              | 768x 100 x 92             | 1.6       |  |
| BK 2001 S       | 356660   | 2000          |                            | Four control levels OFF / 0.8 / 1.2 / 2.0 kW, colour silver. |                           | 1.7       |  |

## Infrared heater for changing table



BY 801 S

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 24  
Protection class I

| Order reference | Art.-Nr. | Rated power W | Number of heating elements | Features   | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|----------------------------|--|---------------------------|-----------|--|
| BY 801 S        | 356680   | 500           | 1                          | Infrared changing table heater for horizontal wall mounting, connection cable with plug, 1 safety quartz radiator bar, pivoting angle 0°–40°, two control levels OFF / 0.5 kW, colour silver, VDE certification, controllable via the pull switch on the device. | 768x 100 x 92             | 1.8       |  |

## Patio radiators

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP X4  
Protection class I



|               | Order reference | Art.-Nr.  | Rated power W | Number of heating elements | Features   | Width x Height x Depth mm | Weight kg |  |
|---------------|-----------------|-----------|---------------|----------------------------|--|---------------------------|-----------|--|
| UWS 75 RD 1/E | UWS 75 RD 1/E   | AKO106169 | 1300          | 2                          | Patio radiator for horizontal wall or ceiling mounting, fixed connection, pivoting angle (one-sided) 25°, 3 control levels OFF / 0.65 / 1.3 kW, switching via an external switch (e.g. series switch), stainless steel design, VDE certification.<br>Can also be connected to 3/N/PE 400V AC, 50 Hz when several UWS heaters are being used.                                       | 750x105x100               | 1.8       |  |
|               |                 |           |               |                            | Infrared heater with two quartz heating elements, robust aluminium casing, protective grid, for horizontal wall mounting, fixed connection, connection cable 1.5 m, 2 quartz radiator bars, 2 control levels OFF / 1.2 kW can be switched externally (without internal pull switch).   |                           |           |  |
| BA1200        | BA1200          | 354870    | 1200          |                            | Halogen infrared heater with a HeLeN infrared heating element for short heat-up time, long service life, high heat output and minimal glare, robust aluminium casing incl. protective grid, for horizontal wall mounting, fixed connection, connection cable 1.5 m, 1 heating element, two control levels OFF / 1.9 kW, can be switched externally (without internal pull switch). | 594x160x144               | 3.2       |  |
| BA1900        | BA1900          | 354880    | 1900          | 1                          |  |                           | 3.1       |  |

## Industrial infrared heaters

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 20  
Protection class I



Infrared heater for larger areas for horizontal or vertical wall or ceiling mounting, connection cable with connector, pivoting angle (single-sided) 60°, two performance levels OFF / 2.0 kW, colour silver/grey.

| Order reference | Art.-Nr.  | Rated power W | Width x Height x Depth mm | Weight kg |
|-----------------|-----------|---------------|---------------------------|-----------|
| RW 120/1        | AKO101945 | 2000          | 1200x155x175              | 4.3       |

## Bathroom fan heater

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 24  
Protection class I



Rapid heater for bathrooms with metal casing for wall mounting, thermostat, protection against overheating, frost protection.

| Order reference | Art.-Nr. | Rated power W | Width x Height x Depth mm | Weight kg |
|-----------------|----------|---------------|---------------------------|-----------|
| H260/4          | 356700   | 2000          | 300x405x120               | 3.2       |

## Design fan heaters

Connection voltage 1/N ~230 V, 50 Hz  
Degree of protection IP 20  
Protection class II



H401 TSD



H400 TS

| Order reference | Art.-Nr. | Rated power W | Features  | Width x Height x Depth mm | Weight kg |
|-----------------|----------|---------------|---|---------------------------|-----------|
| H401 TSD        | 352580   | 2000          | with illuminated display, desired temperature can be selected via touch control within the temperature range of +5 °C to +35 °C, desired temperature and room temperature displayed, antifreeze setting, cold air level, two heating levels 1.2 / 2.0 kW, connection cable with mains plug, colour: silver / anthracite | 235x 328 x 175            | 1.4       |
| H400 TS         | 352570   |               | with infinitely variable thermostat incl. antifreeze (approx. 5 °C), five levels OFF / Cold / 0.8 / 1.2 / 2.0 kW, overtemperature protection, indicator lamp for heating operation, connection cable with mains plug, colour: silver / anthracite   |                           |           |

## Fan heater

Connection voltage 1/N ~230 V, 50 Hz  
Degree of protection IP 21  
Protection class II



SH302 TLU



SH301 TLS

| Order reference | Art.-Nr.  | Rated power W | Features  | Width x Height x Depth mm | Weight kg |
|-----------------|-----------|---------------|---|---------------------------|-----------|
| SH302 TLU       | AIO151156 | 2000          | Wall-mounted or floor-mounted fan heater with axial fans, carrying handle/recess, cable compartment, 24-hour timer, thermostat, antifreeze, cold air level, indicator lamp, five levels OFF / Cold / 0.8 / 1.2 / 2.0 kW, colour blue-grey | 240x 340 x 185            | 1.8       |
| SH301 TLS       | AIO151151 |               | Wall-mounted or floor-mounted fan heater with axial fans, carrying handle/recess, cable compartment, thermostat, antifreeze, cold air level, indicator lamp, five levels OFF / Cold / 0.8 / 1.2 / 2.0 kW, colour blue-grey.               |                           |           |
| SH300 T         | AIO151146 |               | Wall-mounted or floor-mounted fan heater with axial fans, carrying handle/recess, cable compartment, thermostat, antifreeze, colour blue-grey.  |                           |           |

## Fan heater

Connection voltage 1/N ~230 V, 50 Hz  
Degree of protection IP 20  
Protection class II



H380 TLS

| Order reference | Art.-Nr.    | Rated power W | Width x Height x Depth mm | Weight kg |
|-----------------|-------------|---------------|---------------------------|-----------|
| H380 TLS        | AIO03802500 | 2000          | 244x 250 x 155            | 1.4       |



FW 550 S

## Frost protection convector

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 20  
Protection class I

| Order reference | Art.-Nr. | Rated power W | Width x Height x Depth mm | Weight kg |
|-----------------|----------|---------------|---------------------------|-----------|
| FW 550 S        | 356710   | 600           | 260x 242 x 121            | 1.2       |

## AKO cooking plate

Connection voltage 1/N/PE ~230 V, 50 Hz  
Protection class I



KP515



KP525

| Order reference | Art.-Nr.  | Rated power W | Features  | Width x Height x Depth mm | Weight kg |
|-----------------|-----------|---------------|---|---------------------------|-----------|
| KP515           | AIO301038 | 1500          | Single hotplate, diameter 18 cm, indicator lamp, plate output 1.5 kW, infinitely variable temperature control, overflow rim, enamelled white.                             | 260x 68 x 300             | 3.0       |
| KP525           | AIO301048 | 2500          | Double hotplate, diameter 18 cm output 1.5 kW and diameter 14.5 cm output 1.0 kW, indicator lamp, infinitely variable temperature control, overflow rim, enamelled white. | 480x 68 x 300             | 4.2       |

## Under tile heating mats HM...TS

Connection voltage 1/N/PE ~230 V, 50 Hz

### with single-sided, sleeveless connection, self-adhesive



HM... TS

Ready for installation and connection, heating pipe with protective jacket for connecting to the fault current protective switch, heating pipe made of resistance alloy according to DIN 17470 and/or DIN 17471 with teflon insulation, surface-related consumption 150 W/m<sup>2</sup>, heating pipe diameter approx. 4 mm, attached to plastic fabric with one-sided cooling pipe 4 m to simplify installation, installation width 0.5 m, VDE certification according to EN 60335-2-96

| Order reference | Art.-Nr. | Rated power W | Surface-related consumption W/m <sup>2</sup> | Width m | Length m | Surface area m <sup>2</sup> |  |
|-----------------|----------|---------------|--|---------|----------|-----------------------------|--|
| HM 150 TS 150-5 | 351080   | 150W          | 150W/m <sup>2</sup>                          | 0.5m    | 2m       | 1.0m <sup>2</sup>           |  |
| HM 225 TS 150-5 | 343800   | 225W          |  |         | 3m       | 1.5m <sup>2</sup>           |  |
| HM 300 TS 150-5 | 343810   | 300W          |  |         | 4m       | 2.0m <sup>2</sup>           |  |
| HM 450 TS 150-5 | 343820   | 450W          |  |         | 6m       | 3.0m <sup>2</sup>           |  |
| HM 600 TS 150-5 | 343830   | 600W          |  |         | 8m       | 4.0m <sup>2</sup>           |  |
| HM 750 TS 150-5 | 343840   | 750W          |  |         | 10m      | 5.0m <sup>2</sup>           |  |
| HM 900 TS 150-5 | 343850   | 900W          |  |         | 12m      | 6.0m <sup>2</sup>           |  |

Heater mat installation width, comprises of the heater mat width and the installation clearance. Heater mat can be installed variably on site.  
Heated area, comprises of the heater mat width and the installation clearance.

## Under tile heating mats set HM...TS set BTU

Connection voltage 1/N/PE ~230 V, 50 Hz

### with floor temperature controller BTU 401 UN



HM ... TS Set BTU

Ready for installation and connection, heating pipe with protective jacket for connecting to the fault current protective switch, heating pipe made of resistance alloy according to DIN 17470 and DIN 17471 with teflon insulation, surface-related consumption 150 W/m<sup>2</sup>, heating pipe diameter approx. 4 mm, attached to plastic fabric with one-sided cooling pipe 4 m to simplify installation, installation width 0.5 m, VDE certification according to EN 60335-2-96 with electronic floor temperature controller **BTU 401 UN**

Electronic floor temperature controller with digital weekly timer for underfloor heating systems in flat switch mounting frame for flush mounting; floor temperature sensor (standard NTC sensor, 4 m connection cable length, sensor element Ø 7 x 28 mm); can be installed in virtually all flat switch programmes using an adapter element (50 x 50 mm according to DIN 49075) of the flat switch programme manufacturer, switching capacity 230 V AC / 16 (2) A (NO contact), controlling range 10°C to 50°C, LC display indicating status and operating mode, temperature setting in 0.5 K increments, 3 time programs (1, 2 or 3 heating period intervals), individual allocation of weekday and time program, 4 operating modes can be selected (antifreeze / lowering temperature / comfort temperature / timer program), programmable temperature range limitation, sensor monitoring, colour alpine white, IP 30, dimensions in mm (W x H x D) 81.5 x 81.5 x 44.5 (height 16 mm mounted in flush-mounted box)

| Order reference   | Art.-Nr. | Rated power W | Surface-related consumption W/m <sup>2</sup> | Width m | Length m | Surface area m <sup>2</sup> |  |
|-------------------|----------|---------------|--|---------|----------|-----------------------------|--|
| HM 150 TS Set BTU | 351070   | 150W          | 150W/m <sup>2</sup>                          | 0.5m    | 2m       | 1.0m <sup>2</sup>           |  |
| HM 225 TS Set BTU | 350900   | 225W          |  |         | 3m       | 1.5m <sup>2</sup>           |  |
| HM 300 TS Set BTU | 350910   | 300W          |  |         | 4m       | 2.0m <sup>2</sup>           |  |
| HM 450 TS Set BTU | 350920   | 450W          |  |         | 6m       | 3.0m <sup>2</sup>           |  |
| HM 600 TS Set BTU | 350930   | 600W          |  |         | 8m       | 4.0m <sup>2</sup>           |  |
| HM 750 TS Set BTU | 350940   | 750W          |  |         | 10m      | 5.0m <sup>2</sup>           |  |
| HM 900 TS Set BTU | 350950   | 900W          |  |         | 12m      | 6.0m <sup>2</sup>           |  |

Heater mat installation width, comprises of the heater mat width and the installation clearance. Heater mat can be installed variably on site.  
Heated area, comprises of the heater mat width and the installation clearance.

## Under tile mats set HM...TS set BT

Connection voltage 1/N/PE ~230 V, 50 Hz

### with floor temperature controller BT 401 UN



HM ... TS Set BT

Ready for installation and connection, heating pipe with protective jacket for connecting to the fault current protective switch, heating pipe made of resistance alloy according to DIN 17470 and/or DIN 17471 with teflon insulation, surface-related consumption 150 W/m<sup>2</sup>, heating pipe diameter approx. 4 mm, attached to plastic fabric with one-sided cooling pipe 4 m to simplify installation, installation width 0.5 m, VDE certification according to EN 60335-2-96 with

Electronic floor temperature controller **BT 401 UN**  
operating voltage: 230 V, 50 Hz; switching capacity: 16 (2) A at 230 V (NO contact); controlling range 10 °C to 50 °C; standard NTC sensor, 4 m cable length, sensor element Ø 7 x 28 mm with flat switch mounting frame for flush mounting as standard, can be installed in virtually all flat switch programs using an adapter element (50 x 50 mm according to DIN 49075) provided by the flat switch program manufacturer, thermostat dial, temperature range limitation integrated in the casing cover, ON/OFF program switch, LED display for heating and temperature lowering, temperature lowering by remote control (approx. 5 K), sensor monitoring, colour alpine white, IP 30, dimensions in mm(W x H x D) 81.5 x 81.5 x 42.5 (height 16 mm mounted in flush box).

| Order reference  | Ait.-Nr. | Rated power W | Surface-related consumption W/m <sup>2</sup> | Width m | length m | Surface area m <sup>2</sup> |  |
|------------------|----------|---------------|--|---------|----------|-----------------------------|--|
| HM 150 TS Set BT | 351060   | 150W          | 150W/m <sup>2</sup>                          | 0.5m    | 2m       | 1.0m <sup>2</sup>           |  |
| HM 225 TS Set BT | 350840   | 225W          |  |         | 3m       | 1.5m <sup>2</sup>           |  |
| HM 300 TS Set BT | 350850   | 300W          |  |         | 4m       | 2.0m <sup>2</sup>           |  |
| HM 450 TS Set BT | 350860   | 450W          |  |         | 6m       | 3.0m <sup>2</sup>           |  |
| HM 600 TS Set BT | 350870   | 600W          |  |         | 8m       | 4.0m <sup>2</sup>           |  |
| HM 750 TS Set BT | 350880   | 750W          |  |         | 10m      | 5.0m <sup>2</sup>           |  |
| HM 900 TS Set BT | 350890   | 900W          |  |         | 12m      | 6.0m <sup>2</sup>           |  |

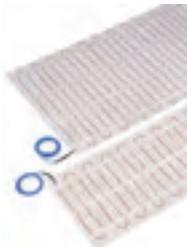
Heater mat installation width, comprises of the heater mat width and the installation clearance. Heater mat can be installed variably on site.  
Heated area, comprises of the heater mat width and the installation clearance.

## Installation accessories for HM...TS



KEDTS Set

| Order reference | Ait.-Nr. | Features  |
|-----------------|----------|---|
| KEDTS Set       | 344010   | Cooling pipe extension for the TS heater mats with protective earthing connection, 1.0 mm <sup>2</sup> , length 10 m, 10 connection sleeves. Only required when the 4 m long cooling pipes connected to the mats via sleeves are not long enough. |
| NHD100          | 319620   | Special retaining dowels for fixing the heater mats to a surface, 100 pieces, length approx. 25 mm.   |



HM ... SF ...

## Under tile heating mats HM ... SF

Connection voltage 1/N/PE ~230 V, 50 Hz

### to be installed directly in the tile adhesive or the levelling

Ready for installation and connection, heating pipe with protective jacket for connecting to the fault current protective switch, heating pipe made of resistance alloy according to DIN 17470 and/or DIN 17471 with teflon insulation, surface-related consumption 150 W/m<sup>2</sup>, additional installation height ca. 5 – 8 mm, heating pipe diameter approx. 2.9 mm, attached to plastic fabric with two cooling pipes of 4 m each, installation width 0.9 m, VDE certification.

| Order reference | Ait.-Nr. | Rated power W | Surface-related consumption W/m <sup>2</sup> | Width m | length m | Surface area m <sup>2</sup> |  |
|-----------------|----------|---------------|--|---------|----------|-----------------------------|--|
| HM 150 SF 150-5 | 335580   | 150W          | 150W/m <sup>2</sup>                          | 0.5m    | 2m       | 1.0m <sup>2</sup>           |  |
| HM 300 SF 150-5 | 336280   | 300W          |  |         | 4m       | 2.0m <sup>2</sup>           |  |
| HM 450 SF 150-5 | 336300   | 450W          |  |         | 6m       | 3.0m <sup>2</sup>           |  |
| HM 180 SF 150   | 326140   | 180W          |  | 0.9m    | 1.3m     | 1.2m <sup>2</sup>           |  |
| HM 410 SF 150   | 330260   | 410W          |  |         | 3.1m     | 2.7m <sup>2</sup>           |  |
| HM 1130 SF 150  | 326170   | 1130W         |  |         | 8.5m     | 7.5m <sup>2</sup>           |  |

Heater mat installation width, comprises of the heater mat width and the installation clearance. Heater mat can be installed variably on site.  
Heated area, comprises of the heater mat width and the installation clearance.  
phase out

## Installation accessories for HM ... SF



KED SF Set

| Order reference | Ait.-Nr. | Features  |
|-----------------|----------|---|
| NHD100          | 319620   | Special retaining dowels for fixing the heater mats to a surface, 100 pieces, length approx. 25 mm.   |
| KED SF Set      | 336560   | Cooling pipe extension for heater mat system HM ... SF with protective jacket, 1.0 mm <sup>2</sup> , 10 m long blue, 10 m black, 10 connection sleeves. |
| KED 1010 SF     | 329850   | Cooling ends extension for HM ... SF, with protective jacket, 1.0 mm <sup>2</sup> , length 10 m, black  |

phase out: KED SF Set, KED 1010 SF

## Floor heating mats HM ... R for installation in or under concrete

Connection voltage 1/N ~230 V, 50 Hz



HM ... R ...

For use as underfloor direct heating, underfloor storage heating or edge zone direct heating with PVC outer surface, manufactured ready for mounting, fixed to a carrier netting for installation in/under the screed, heating pipe diameter approx. 7 mm. including waterproof sleeves and colour-coded cooling pipes 4m per side, heating pipe design: NH2GMY-90 according to VDE 0253/12. 9 for use in dry rooms and under or in the screed, VDE certification.

| Order reference | Art.-Nr. | Rated power W | Surface-related consumption W/m <sup>2</sup> | Width m | Length m | Surface area m <sup>2</sup> |  |  |
|-----------------|----------|---------------|--|---------|----------|-----------------------------|--|--|
| HM 21 R 100     | 326840   | 180W          | 100W/m <sup>2</sup>                          | 0.9m    | 2.0m     | 1.8m <sup>2</sup>           |  |  |
| HM 31 R 100     | 320640   | 310W          |  |         | 3.4m     | 3.1m <sup>2</sup>           |  |  |
| HM 51 R 100     | 320650   | 510W          |  |         | 5.7m     | 5.1m <sup>2</sup>           |  |  |
| HM 100 R 100    | 320660   | 1080W         |  |         | 12 mØ    | 10.8m <sup>2</sup>          |  |  |
| HM 170 R 100    | 320670   | 1780W         |  |         | 19.6m    | 17.6m <sup>2</sup>          |  |  |
| HM 21 R 120     | 326830   | 194W          | 120W/m <sup>2</sup>                          |         | 1.8m     | 1.6m <sup>2</sup>           |  |  |
| HM 33 R 120     | 320680   | 346W          |  |         | 3.2m     | 2.9m <sup>2</sup>           |  |  |
| HM 56 R 120     | 320690   | 583W          |  |         | 5.4m     | 4.9m <sup>2</sup>           |  |  |
| HM 110 R 120    | 320700   | 1156W         |  |         | 10.7m    | 9.6m <sup>2</sup>           |  |  |
| HM 180 R 120    | 320710   | 1922W         |  |         | 17.8m    | 16m <sup>2</sup>            |  |  |
| HM 21 R 140     | 326820   | 214W          | 140W/m <sup>2</sup>                          |         | 1.7m     | 1.5m <sup>2</sup>           |  |  |
| HM 36 R 140     | 319260   | 365W          |  |         | 2.9m     | 2.6m <sup>2</sup>           |  |  |
| HM 60 R 140     | 319270   | 630W          |  |         | 5.0m     | 4.5m <sup>2</sup>           |  |  |
| HM 120 R 140    | 319280   | 1260W         |  |         | 10.0m    | 9.0m <sup>2</sup>           |  |  |
| HM 200 R 140    | 319290   | 2079W         |  |         | 16.5m    | 14.9m <sup>2</sup>          |  |  |
| HM 21 R 160     | 327230   | 216W          | 160W/m <sup>2</sup>                          |         | 1.5m     | 1.4m <sup>2</sup>           |  |  |
| HM 36 R 160     | 327240   | 390W          |  |         | 2.7m     | 2.4m <sup>2</sup>           |  |  |
| HM 60 R 160     | 327250   | 662W          |  |         | 4.6m     | 4.1m <sup>2</sup>           |  |  |
| HM 120 R 160    | 327260   | 1310W         |  |         | 9.1m     | 8.2m <sup>2</sup>           |  |  |
| HM 200 R 160    | 327270   | 2088W         |  |         | 14.5m    | 13.1m <sup>2</sup>          |  |  |
| HM 21 R 180     | 326790   | 243W          | 180W/m <sup>2</sup>                          |         | 1.5m     | 1.4m <sup>2</sup>           |  |  |
| HM 35 R 180     | 326670   | 356W          |  |         | 2.2m     | 2.0m <sup>2</sup>           |  |  |
| HM 57 R 180     | 326680   | 616W          |  |         | 3.8m     | 3.4m <sup>2</sup>           |  |  |
| HM 120 R 180    | 326690   | 1215W         |  |         | 7.5m     | 6.8m <sup>2</sup>           |  |  |
| HM 195 R 180    | 326700   | 1976W         |  |         | 12.2m    | 11.0m <sup>2</sup>          |  |  |
| HM 21 R 205     | 326780   | 258W          | 205W/m <sup>2</sup>                          |         | 1.4m     | 1.3m <sup>2</sup>           |  |  |
| HM 36 R 205     | 319420   | 387W          |  |         | 2.1m     | 1.9m <sup>2</sup>           |  |  |
| HM 60 R 205     | 319430   | 572W          |  |         | 3.1m     | 2.8m <sup>2</sup>           |  |  |

Heater mat installation width, comprises of the heater mat width and the installation clearance. Heater mat can be installed variably on site. Heated area, comprises of the heater mat width and the installation clearance 205 W/m<sup>2</sup> and 240W/m<sup>2</sup> only as edge zone heating for installation in the screed.

phase out: HM ... R 205

## Installation accessories for HM ... R



KEB 1525 R

| Order reference | Art.-Nr. | Features  |  |
|-----------------|----------|---|--|
| KEB 1525 R      | 329810   | Cooling pipe extension for heater mat system HM ... R, 1.5 mm <sup>2</sup> , length 25 m, colour blue.  |  |
| KES 1525 R      | 329820   | Cooling pipe extension for heater mat system HM ... R, 1.5 mm <sup>2</sup> , length 25 m, colour black. |  |
| VRB 10 R        | 339670   | 10 Connection sleeve set for cooling pipe extension.  |  |
| NHD100          | 319620   | Special retaining dowels for fixing the heater mats to a surface, 100 pieces, length approx. 25 mm.     |  |



VRB 10 R

## Floor heating mat HM...RS for installation in or under concrete

Connection voltage 1/N/PE ~230 V, 50 Hz



HM ... RS ...

For use as underfloor direct heating, underfloor storage heating or edge zone direct heating with protective jacket and PVC outer surface, manufactured ready for mounting, fixed to a carrier netting for installation in/under the screed, including waterproof sleeves and colour-coded cooling pipes 4m per side, heating pipe design: NH2GYQUY-90 according to VDE 0253 for use in dry rooms, damp and wet rooms, heating pipe diameter approx. 9 mm, VDE certification.

| Order reference | Ait.-Nr. | Rated power W | Surface-related consumption W/m <sup>2</sup> | Width m | Length m | Surface area m <sup>2</sup> |  |  |
|-----------------|----------|---------------|--|---------|----------|-----------------------------|--|--|
| HM 21 RS 140    | 326890   | 214W          | 140W/m <sup>2</sup>                          | 0.9m    | 1.7m     | 1.5m <sup>2</sup>           |  |  |
| HM 36 RS 140    | 320800   | 365W          |  |         | 2.9m     | 2.6m <sup>2</sup>           |  |  |
| HM 21 RS 160    | 327280   | 216W          |  |         | 1.5m     | 1.4m <sup>2</sup>           |  |  |
| HM 36 RS 160    | 327290   | 389W          |  |         | 2.7m     | 2.4m <sup>2</sup>           |  |  |
| HM 60 RS 160    | 327300   | 662W          |  |         | 4.6m     | 4.1m <sup>2</sup>           |  |  |
| HM 120 RS 160   | 327310   | 1310W         |  |         | 9.1m     | 8.2m <sup>2</sup>           |  |  |
| HM 200 RS 160   | 327320   | 2088W         |  |         | 14.5m    | 13.1m <sup>2</sup>          |  |  |
| HM 21 RS 180    | 326860   | 243W          | 180W/m <sup>2</sup>                          |         | 1.5m     | 1.4m <sup>2</sup>           |  |  |
| HM 35 RS 180    | 326710   | 356W          |  |         | 2.2m     | 2.0m <sup>2</sup>           |  |  |
| HM 57 RS 180    | 326720   | 616W          |  |         | 3.8m     | 3.4m <sup>2</sup>           |  |  |
| HM 120 RS 180   | 326730   | 1215W         |  |         | 7.5m     | 6.8m <sup>2</sup>           |  |  |
| HM 195 RS 180   | 326740   | 1976W         |  |         | 12.2m    | 11.0m <sup>2</sup>          |  |  |
| HM 21 RS 205    | 326850   | 258W          | 205W/m <sup>2</sup>                          | 0.9m    | 1.4m     | 1.3m <sup>2</sup>           |  |  |
| HM 36 RS 205    | 320960   | 387W          |  |         | 2.1m     | 1.9m <sup>2</sup>           |  |  |
| HM 60 RS 205    | 320970   | 572W          |  |         | 3.1m     | 2.8m <sup>2</sup>           |  |  |
| HM 120 RS 205   | 320980   | 1292W         |  |         | 7.0m     | 6.3m <sup>2</sup>           |  |  |
| HM 200 RS 205   | 320990   | 1974W         |  |         | 10.7m    | 9.6m <sup>2</sup>           |  |  |
| HM 21 RS 240    | 319500   | 238W          | 240W/m <sup>2</sup>                          | 0.9m    | 1.1m     | 1.0m <sup>2</sup>           |  |  |
| HM 39 RS 240    | 319510   | 410W          |  |         | 1.9m     | 1.7m <sup>2</sup>           |  |  |
| HM 65 RS 240    | 319520   | 670W          |  |         | 3.1m     | 2.8m <sup>2</sup>           |  |  |
| HM 133 RS 240   | 319530   | 1318W         |  |         | 6.1m     | 5.5m <sup>2</sup>           |  |  |

Heater mat installation width, comprises of the heater mat width and the installation clearance. Heater mat can be installed variably on site. Heated area, comprises of the heater mat width and the installation clearance 205 W/m<sup>2</sup> and 240W/m<sup>2</sup> only as edge zone heating for installation in the screed.

phase out: HM ... RS 140

## Installation accessories for HM ... RS



KES 1525 RS



VRB 10 RS

| Order reference | Ait.-Nr. | Features  |  |
|-----------------|----------|---|--|
| KES 1525 RS     | 329830   | Cooling pipe extension for heater mat system HM ... RS, with protective jacket, 1.5 mm <sup>2</sup> , length 25 m, colour black |  |
| KEB 1525 RS     | 330270   | Cooling pipe extension for heater mat system HM ... RS, with protective jacket, 1.5 mm <sup>2</sup> , length 25 m, colour blue. |  |
| VRB 10 RS       | 339680   | Connection kit for heater mat system HM ... RS, 10 connecting sleeve set for extending the cooling pipe.                        |  |
| NHD100          | 319620   | Special retaining dowels for fixing the heater mats to a surface, 100 pieces, length approx. 25 mm.                             |  |

**Self-regulating electric band heaters – per metre**

Connection voltage 1/N/PE ~230 V, 50 Hz



HBS...

Gutter heater or pipe trace heater made of self-limiting electric band heater, used for frost protection on (vertical) pipes, in gutters or on roof surfaces. Made of two parallel tin-plated stranded copper wires and an intermediate heating element, protective jacket of tin-plated copper, polyolefin outer surface, VDE certification. Different heat output and operating range, depending on the design. Supplied in lengths from 15 m.

| Order reference | Art.-Nr. | Heatoutput band heater at 10 °C W | Application        | Colour | Width x Height mm |  |
|-----------------|----------|-----------------------------------|--------------------|--------|-------------------|--|
| HBS10           | 336060   | 10                                | pipe heating cable | blue   | 12x 5.8           |  |
| HBS25           | 336070   | 25                                |                    | green  |                   |  |
| HBS 15 UV       | 336080   | 15                                |                    | black  |                   |  |

Additional delivery of 10 % of the ordered quantity is possible. The actual delivered quantity will be charged.

**Self-regulating electric band heaters**

Connection voltage 1/N/PE ~230 V, 50 Hz



HBS...

Gutter heater or pipe trace heater made of self-limiting electric band heater, used for frost protection on (vertical) pipes, in gutters or on roof surfaces. Made of two parallel tin-plated stranded copper wires and an intermediate heating element, protective jacket of tin-plated copper, polyolefin outer surface, VDE certification. Different heat output and operating range, depending on the design. Supplied in a 300 m cardboard roll.

| Order reference | Art.-Nr. | Heatoutput band heater at 10 °C W | Application        | Colour | Width x Height mm |  |
|-----------------|----------|-----------------------------------|--------------------|--------|-------------------|--|
| HBS10-300       | 336090   | 10                                | pipe heating cable | blue   | 12x 5.8           |  |
| HBS25-300       | 336100   | 25                                |                    | green  |                   |  |
| HBS 15 UV-300   | 336110   | 15                                |                    | black  |                   |  |

**Connecting equipment for HBS**

SMSF

| Order reference | Art.-Nr. | Features   |  |
|-----------------|----------|--|--|
| SMS             | 314520   | Shrink tubing connection kit for mounting on polyester casings, including M20 pipe unions and termination for HBS electric band heaters.   |  |
| SMSF            | 332090   | Shrink tubing connection kit for mounting on polyester casings, with a clamping block for connecting flexible cooling pipes and electric band heaters including termination for HBS electric band heaters. |  |
| VMS             | 316380   | Connecting sleeve set with connecting block for connecting two electric band heaters.  |  |

**Installation accessories electric band heaters**

MB

HKB50

| Order reference | Art.-Nr. | Features  |  |
|-----------------|----------|---|--|
| MB              | 316340   | Mounting plate made of stainless steel incl. cable ties, for use as a spacer, edge protection, roof holder etc. (packaging unit 5).   |  |
| GKB4657-12      | 316310   | Adhesive fabric tape for long-term fixing of electric band heaters. Length 50 m, 12 mm wide.  |  |
| HKB50           | 316330   | Marking labels self-adhesive, inscription: "Electrically heated" to be attached to the pipe insulation (packaging unit 50). Attachment regulations Dimensions (WxH) 170 x 70 mm |  |

phase out: GKB 4657-12

## Control and regulation devices for electric band heaters and exterior surface heating

### Electronic ice and snow detector



| Order reference | Art.-Nr. | Features   | Wdth x Height x Depth mm |  |
|-----------------|----------|--|--------------------------|--|
| EM1773          | 361710   | Digital ice and snow detectors for use in combination with one or two combined humidity and temperature sensors (type EF 3354 / EF 3351) for gutters, flat roofs and parabolic aerials. Temperature and humidity measurement; humidity sensitivity, minimum heating time, lower and upper switch-on temperature adjustable for each connected sensor, integration into distribution board (6 modular spacings on 35 mm top hat rail according to DIN EN 60715), switching contact heating 250 V AC / 6 (2) A. LED displays the current operating status. | 107x 88 x 60             |  |
| EF3354          | 361720   | Ice sensor made of brass for gutters, flat roofs and parabolic aerials for use in combination with EM 1773 digital ice and snow detector, maintenance-free, without any exposed metal electrodes for detecting humidity, degree of protection IP 68, 6 m long connecting lead (type SL-Y11Y, extendable up to 50 m, min. 4 x 0.8 mm <sup>2</sup> ), dimensions (L x Ø 96 x 20 mm).   |                          |  |

### Electronic temperature controller



| Order reference | Art.-Nr. | Features  | Wdth x Height x Depth mm |  |
|-----------------|----------|---|--------------------------|--|
| ETR 060 N       | 328830   | Electronic temperature controller with remote sensor, controlling range 0 °C to 60 °C, mounting on top hat rail e.g. installation in terminal block, space required for 2 modular spaces, incl. standard NTC sensor, sensor connection cable length 4 m, sensor element diameter approx. 8 mm, switching contact 230 V / 10 (3) A (NO contact), 230 V / 5 (1.5) A (NC contact). | 36x 86 x 60              |  |
| BT 060 AN       | 332080   | Electronic temperature controller with remote sensor, controlling range 0 °C to 60 °C, IP 65, incl. standard NTC sensor, sensor connection cable length 4m, diameter sensor element approx. 8 mm, switching contact 230 V / 16 A (changeover contact), surface mounting, degree of protection IP65.   | 96x 169 x 56             |  |

### Electromechanical temperature controller



| Order reference | Art.-Nr. | Features   | Wdth x Height x Depth mm |  |
|-----------------|----------|--|--------------------------|--|
| RTA 1515-2      | 319220   | Electromechanical controller for gutter heating, bimetal controller with two separately adjustable thermostats (1 NC contact, 1 NO contact), 230 V / 16 (4) A, controlling range -20 °C to +25 °C, IP 65.  |                          |  |
| RTA 2030        | 319210   | Electromechanical frost protection convector for outdoors or rooms subject to dampness. Bimetal controller with thermal feedback. Viewer for indoor adjustment, changeover switching contact, switching capacity: heating 230 V AC / 16 (4) A, cooling 230 V AC / 5 (2) A, controlling range -20 °C to +35 °C, IP 65, for use as antifreeze protection of a pipe (external temperature). | 122x 120 x 55            |  |

### Pipe-mounted temperature controller



| Order reference | Art.-Nr. | Features  | Wdth x Height x Depth mm |  |
|-----------------|----------|---|--------------------------|--|
| RAR20-90        | 316360   | Pipe trace heater with outdoor regulation (bimetal), controlling ranges 20 °C to 90 °C changeover switching contact, 230 V, 15 (2.5) A, delivery includes tightening strap, degree of protection IP 20. | 50x 110 x 59             |  |

## DC charge controls for storage heating systems

### Universal DC charge control with timer function

#### Dimplex PROTOMATIK®



ZW05DCU

Universal DC microprocessor-driven charge control with timer function for backward, intermediate and forward control, two control voltage outputs 0.91 to 1.43 V DC and -3.6 to -2.85 V DC, back-lit multi-function display, 4-key operation with direct selector switch, service function, external temperature averaging, direct control via charge control line, automatic PTC external sensor recognition (old Bauknecht external sensor), time-controlled safety output for enable and additional enable timer, adjustable charge enable detection, initial heating program for screed flooring, characteristic curve switching for lower operation external or via integrated real-time clock (weekly program and absence of up to 30 days), synchronised charging using a real-time clock possible, integrated error detection, power reserve for voltage interruption of up to 6 h, top hat rail mounting – 6 modular spaces, degree of protection IP 20 if installed accordingly, lead-sealable connection terminal covers as a standard, standard NTC external sensor included in the scope of supply (connection cable 2 m; extendable up to a maximum of 30 m; IP54), direct voltage 0.91 to 1.43 V and -3.6 to -2.85 V.

For storage heating systems and electric underfloor storage heaters with DC charge control.

| Order reference | Art.-Nr. | Width x Height x Depth mm |  |
|-----------------|----------|---------------------------|--|
| ZW05DCU         | 348290   | 105x 83 x 61              |  |

### DC charge control

Control voltage 1 0.91 to 1.43 V

#### Dimplex PROTOMATIK®



WG05DC

For storage heaters with electronic DC charge controller. Without timer for forward control, control voltage system 0.91 to 1.43 V DC, adjustable base charge, characteristic curve switching for external lower operation, integrated error detection, top hate rail mounting – 3 modular spaces, degree of protection IP 20 if installed accordingly, standard NTC external sensor included in the scope of supply (connection cable 2 m; extendable up to a maximum of 30 m; IP54), direct voltage 0.91 to 1.43 V.

| Order reference | Art.-Nr. | Width x Height x Depth mm |  |
|-----------------|----------|---------------------------|--|
| WG05DC          | 348300   | 54x 83 x 61               |  |

### DC group control unit

Control voltage 1 0.91 to 1.43 V

#### Dimplex PROTOMATIK®



GR05DC

For storage heaters with electronic DC charge controller. "Domestic station" for individual control of groups of heaters in combination with a DC central control unit, adjuster for raising or lowering the charge, characteristic curve switching for external lowering operation; charge level in lowering operation (0 – 100 %) adjustable, reference variable 0.91 to 1.43 V DC, top hat rail mounting – 3 modular spaces, degree of protection IP 20 if installed accordingly, 0.91 to 1.43 V DC.

| Order reference | Art.-Nr. | Width x Height x Depth mm |  |
|-----------------|----------|---------------------------|--|
| GR05DC          | 348310   | 54x 83 x 61               |  |

### Universal DC charge controller

Control voltage 1 0.91 to 1.43 V  
Control voltage 2 -3.6 to -2.85 V

#### Dimplex PROTOMATIK®



AR 05DCU 2



AR 05DCU 4

For storage heating systems and electric underfloor storage heaters with DC charge control. Back-lit multi-function display, 4-key operation, error detection, individual heating circuits can be shut off; switching capacity max. 3A / 230 V~, reference variable 0.91 to 1.43 V or -3.6 to -2.85 V DC, adjustable heating curve (extendable temperature setting range 30°C to 90°C for residual heat and external temperature-dependent loading of the storage heating system), individual raising / lowering of day-time and night-time charging, sensor type switchable between standard NTC temperature sensor (2.43 kOhm/20°C) and NTC sensor type 30 (500 Ohm/20°C), top hat rail mounting – 3 modular spaces, degree of protection IP 20 if installed accordingly. (Note: NTC temperature sensors are not included in the scope of supply), for 0.91 to 1.43 V and -3.6 to -2.85 V DC.

| Order reference | Art.-Nr. | Features                                       | Width x Height x Depth mm |
|-----------------|----------|--|---------------------------|
| AR 05DCU 2      | 348350   | Max. of two control circuits can be connected  | 54x 83 x 61               |
| AR 05DCU 4      | 348370   | Max. of four control circuits can be connected |                           |

## AC charge controls for storage heating systems

### AC charge control with timer function

#### Dimplex PROTOMATIK ®



ZWM05AC

For storage heaters with thermomechanical AC charge controller and duo-electronic storage heaters. AC-microprocessor-driven charge control with timer function for backward, intermediate and forward control, control signal 230 V~ AC, control system adjustable from 80% to 100% up to 37% operating time system, back-lit multi-function display, 4-key operation with direct selector switch, service function, external temperature averaging, direct control via charge control line, automatic PTC external sensor recognition (old Bauknecht exterior sensor), time-controlled safety output for enable and additional enable time 6 A / 230 V~, max. output control rating (Z1/Z2) 300 W, characteristic curve switching for lower operation external or using an integrated real-time timer (weekly program and absence of up to 30 days), synchronised charging using a real-time clock possible, integrated error detection, power reserve for voltage interruption of up to 6 h, top hat rail mounting – 6 modular spaces, degree of protection IP 20 if installed accordingly, lead-sealable connection terminal covers as standard, standard NTC external sensor included in the scope of supply (connection cable 2 m; extendable up to a maximum of 30 m; IP54), alternating voltage 230 V~, 37% – 100% operating time system.

| Order reference | Ait.-Nr. | Wdth x Height x Depth mm |  |
|-----------------|----------|--------------------------|--|
| ZWM05AC         | 348320   | 105x 83 x 61             |  |

### AC charge control

#### Dimplex PROTOMATIK ®



WGM05AC

For storage heaters with thermomechanical AC charge controller and duo-electronic storage heaters. AC central control unit without timer for forward control, control signal 230 V~ AC, control system adjustable from 80% to 68/72 % or 40/37% operating time system, adjustable base charge, characteristic curve switching for external lower operation, integrated error detection, max. output control rating (Z1/Z2) 300 W, top hat rail mounting – 3 modular spaces, degree of protection IP 20 if installed accordingly, standard NTC external sensor included in the scope of supply (connection cable 2 m; extendable up to a maximum of 30 m; IP54), alternating voltage 230 V~, 80% or 37%/40% or 68%/72% operating time system.

| Order reference | Ait.-Nr. | Wdth x Height x Depth mm |  |
|-----------------|----------|--------------------------|--|
| WGM05AC         | 348330   | 54x 83 x 61              |  |

### AC group control unit

#### Dimplex PROTOMATIK ®



GRM05AC

For storage heaters with thermomechanical AC charge controller and duo-electronic storage heaters. "Domestic station" for individual control of groups of heaters in combination with a AC central control unit, reference variable control signal 230 V AC/% operating time; operating time system converter function (operating time control system of the ingoing and outgoing signals can be coded as 80%, 72/68% or 40/37% operating time system), adjuster for raising or lowering the charge, characteristic curve switching for external lowering operation; charge level in lowering operation (0 – 100%); max. output control rating (A1/A2) 300 W, top hat rail mounting – 3 modular spaces, degree of protection IP 20 if installed accordingly, 230 V~ AC, 80%, 72/68% or 40/37% operating time system.

| Order reference | Ait.-Nr. | Wdth x Height x Depth mm |  |
|-----------------|----------|--------------------------|--|
| GRM05AC         | 348340   | 54x 83 x 61              |  |

### Temperature sensor



FG3115

| Order reference | Ait.-Nr. | Features   | Wdth x Height x Depth mm |  |
|-----------------|----------|--|--------------------------|--|
| FG3115          | 336620   | Norm NTC-2 temperature sensor (2.43 kOhm/20°C) according to DIN 44574 with weather proof casing for surface mounting, terminal connection. | 55x 94.3 x 37            |  |

## Room temperature controller



RT 200



RT 201



RT 202



RTS 207

| Order reference | Art.-Nr. | Features  | Width x Height x Depth mm |
|-----------------|----------|---|---------------------------|
| RT 200          | 355480   | Electromechanical temperature controller (bimetal) with thermal feedback, switching capacity 230 V / 2 (1) A, IP 30, controlling range 5 °C to 30 °C, temperature lowering at night by remote control (approx. 4 K), extremely thin casing, colour alpine white, temperature range limitation in the casing cover, surface mounting.  | 78x 78.5 x 14             |
| RT 201          | 355490   | Electromechanical temperature controller (bimetal) with thermal feedback, switching capacity 230 V / 2 (1) A, IP 30, controlling range 5 °C to 30 °C, temperature lowering at night by remote control (approx. 4 K), extremely thin casing, colour alpine white, temperature range limitation in the casing cover, surface mounting, with ON/OFF switch and heating mode indicator lamp.    |                           |
| RT 202          | 355500   | Electromechanical temperature controller (bimetal) with thermal feedback, switching capacity 230 V / 10 (4) A, IP 30, controlling range 5 °C to 30 °C, colour alpine white, temperature range limitation in the casing cover, surface mounting, with 2 switches (ON/OFF, supplementary heating) and 2 indicator lamps (ON/OFF, supplementary heating).                                      | 78x 83.4 x 23             |
| RTS 207         | 355520   | Electromechanical temperature controller (bimetal) with thermal feedback, switching capacity 230 V / 10 (4) A, IP 30, controlling range 5 °C to 30 °C, temperature lowering at night by remote control (approx. 4 K), colour alpine white, temperature range limitation in the casing cover, surface mounting. With closed casing cover (temperature adjuster covered, for use in schools). | 78x 83.4 x 26             |

## Room temperature controller in flat switch mounting frame for flush mounting



RT 200 U



RT 201 U



RT 202 U



RT 204 U

| Order reference | Art.-Nr. | Features  | Width x Height x Depth mm |
|-----------------|----------|---|---------------------------|
| RT 200 U        | 355560   | Electromechanical temperature controller (bimetal) with thermal feedback, flat switch mounting frame for flush mounting as standard, can be installed in virtually all flat switch programs using an adapter element (50 x 50 mm according to DIN 49075) provided by the flat switch program manufacturer, switching capacity 250 V AC / 10 (4) A, controlling range 5 °C to 30 °C, thermostat dial, temperature range limitation in the casing cover, temperature lowering by remote control (approx. 4 K), colour alpine white.   | 81x 85 x 16               |
| RT 201 U        | 355570   | Electromechanical temperature controller (bimetal) with thermal feedback, flat switch mounting frame for flush mounting as standard, can be installed in virtually all flat switch programs using an adapter element (50 x 50 mm according to DIN 49075) provided by the flat switch program manufacturer, switching capacity 250 V AC / 10 (4) A, controlling range 5 °C to 30 °C, thermostat dial, temperature range limitation in the casing cover, temperature lowering by remote control (approx. 4 K), colour alpine white. With ON/OFF switch, LED display mode.   |                           |
| RT 202 U        | 355580   | Electromechanical (bimetal) temperature controller with thermal feedback, flat switch mounting frame for flush mounting as standard, can be installed in virtually all flat switch programs using an adapter element (50 x 50 mm according to DIN 49075) provided by the flat switch program manufacturer, switching capacity 250 V AC / 10 (4) A, controlling range 5 °C to 30 °C, thermostat dial, temperature range limitation in the casing cover, temperature lowering by remote control (approx. 4 K), colour alpine white. Switching output supplementary heating and ON/OFF switch for supplementary heating, LED display supplementary heating mode. |                           |
| RT 204 U        | 355590   | Electromechanical (bimetal) temperature controller with thermal feedback, flat switch mounting frame for flush mounting as standard, can be installed in virtually all flat switch programs using an adapter element (50 x 50 mm according to DIN 49075) provided by the flat switch program manufacturer, switching capacity 250 V AC / 13 (4) A, max. 3000W, controlling range 5 °C to 30 °C, thermostat dial, temperature range limitation in the casing cover, temperature lowering by remote control (approx. 4 K), colour alpine white.   |                           |

## Room temperature controller with plug



RT 104 ST

| Order reference | Ait.-Nr. | Features   | Wdth x Height x Depth mm |
|-----------------|----------|--|--------------------------|
| RT 104 ST       | 348180   | Plug thermostat (bimetal) suitable for plugging into a socket, controlling range 5 °C to 30 °C, temperature range limitation in the casing cover, switching capacity 250V AC / 13 (4) A, max. 3000 W, colour: alpine white | 74x 74 x 83              |

Depth including plug



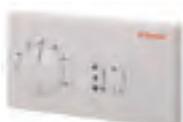
RT 210

## Room temperature controller with changeover switching contact

Electromechanical temperature controller with thermal feedback, possible applications heating: storage heaters, WW actuators, possible applications cooling: air conditioners, ventilation units, voltage connection 230/24 V AC, 50/60 Hz, switching capacity: heating 10(4) A / 230 V AC and 2(2) A / 24 V AC, cooling 5(2) A / 230 V AC and 1(1) A / 24 V AC, controlling range 5 °C to 30 °C, temperature range limitation in the casing cover, degree of protection IP 30, flat casing, colour alpine white.

| Order reference | Ait.-Nr. | Wdth x Height x Depth mm |
|-----------------|----------|--------------------------|
| RT 210          | 355510   | 74x 74 x 23              |

## Electronic room temperature controller (fan speed controller)



RTi 402

| Order reference | Ait.-Nr. | Features  | Wdth x Height x Depth mm |
|-----------------|----------|---|--------------------------|
| RTi 402         | 338810   | Electronic room temperature controller for speed control (wave packet control) for storage heaters with ON/OFF switch for discharge operation and ON/OFF switch for operating mode (normal / lowering at night / supplementary heating), controlling range 5 °C to 30 °C, external temperature lowering at night (approx. 5 K), temperature range limitation integrated in the casing cover, switching capacity 230 V / 10-180 VA, supplementary heating 250 V / 16 A, colour alpine white. | 147x 79 x 27             |

phaseout

## Room temperature controller with timer



RTU 400 U



RTU 200 AT

| Order reference | Ait.-Nr. | Features  | Wdth x Height x Depth mm |
|-----------------|----------|---|--------------------------|
| RTU 400 U       | 355530   | Electronic room temperature controller with digital weekly timer in flat switch mounting frame for flush mounting; can be installed in virtually all flat switch programs using an adapter element (50 x 50 mm according to DIN 49075) provided by the flat switch program manufacturer; switching capacity 230 V AC / 8 (2) A (NO contact); controlling range 5 °C to 30 °C; LC display indicating status and operating mode; temperature setting in 0.5 K increments; 3 time programs programmable (1, 2 or 3 heating period intervals); individual allocation of weekday and time program; 4 operating modes can be selected (antifreeze / lowering temperature / comfort temperature / timer programme); pilot function TA, programmable temperature range limitation; adjustable load and temperature correction; colour alpine white. | 81x 85 x 16              |
| RTU 200 AT      | 355600   | Electronic ON/OFF room temperature controller with weekly timer, programming of heating-up and lowering times by means of graphic representation of the control elements on the display (shortest switching time 15 min.), lowering temperature can be adjusted, direct selector switches (ON/OFF, Holiday, Party, Mode, Information), automatic daylight saving (summer)/ winter time setting taking leap years into consideration, switching capacity 230 V AC / 8 (2) A, temperature setting range 5 °C – 30 °C, colour alpine white, degree of protection IP30, surface mounting.   | 110x 111 x 26            |

## Hygrostat



HYG 100

Controller for regulation of relative humidity, for humidification and dehumidification, controlling range 30-100 % relative humidity, switching capacity: dehumidification 230 V / 5 (0.2) A, humidification 230 V / 3 (0.2) A, voltage connection 24-250 V AC, 50/60 Hz, degree of protection IP 30, flat casing, colour alpine white.

| Order reference | Ait.-Nr. | Wdth x Height x Depth mm |
|-----------------|----------|--------------------------|
| HYG 100         | 330380   | 74x 74 x 23              |

## Integrated room temperature controller



RTID 31 / RTED 30

| Order reference | Art.-Nr. | for device type  | Features  |
|-----------------|----------|--|---|
| RTID 31         | 324530   | VFDI 20C – VFDI 70C<br>FSD 12C – FSD 48C<br>VNDI 30C – VNDI 50C<br>VTDI 45C – VTDI 75C | Integrated electronic speed controller (wave packet control), complete kit, can be plugged into the duo charge controller, with switch for "lowering the temperature at night" and switch for "supplementary heating" with control lamps, control panel in control recess, 230 V / 60 VA (fan) / 10 A (supplementary heating), controlling range 8 °C to 30 °C. |
| RTED 30         | 324520   |  | Integrated electronic controller, complete kit, can be plugged into the duo charge controller, with switch for "lowering the temperature at night" and switch for "supplementary heating" with control lamps, control panel in control recess, 230 V / 60 VA (fan) / 10 A (supplementary heating), controlling range 8 °C to 30 °C.                             |
| RTEV 99         | 333990   | VFDI...C & ESS...K<br>FSD...C & ESF...K<br>VNDI...C & ESN...K<br>VTDI...C & EST...K    | Integrated electromechanical controller with thermal feedback, complete universal kit, with ON/OFF switch and switch for "supplementary" heating with control lamps. Control panel in control recess, 230 V / 10 (4) A, controlling range 5 °C to 30 °C.  |

Caution: not for use in combination with water-proofing kits



RTEV 99

## Floor temperature controller



BT 401UN

| Order reference | Art.-Nr. | Features   | Wdth x Height x Depth mm |
|-----------------|----------|--|--------------------------|
| BT 401 UN       | 355450   | Electronic floor temperature controller with floor temperature sensor (standard NTC sensor, 4 m cable length, sensor element Ø 7 x 28 mm) for underfloor heating systems; switching capacity 230 V AC / 16 (2) A (NO contact); controlling range 10–50 °C; thermostat dial; temperature range limitation in the casing cover; ON/OFF program switch; LED display for heating operation and temperature lowering; temperature lowering by remote control (approx. 5 K); sensor monitoring; colour alpine white; degree of protection IP 30. | 81x 85 x 16              |
| BT 300 AN       | 355440   | Electronic floor temperature controller with remote sensor for underfloor heating systems; controlling range 10 to 42 °C; mechanical limiting of the setting range possible; ON/OFF switch and heating mode display; switching contact 230 V / 16 (4) A; incl. standard NTC sensor, 4 m connection cable length, diameter approx. 8 mm, colour alpine white; IP 30.  | 74x 70 x 26              |
| ETR 060 N       | 328830   | Electronic temperature controller with remote sensor, controlling range 0 °C to 60 °C, mounting on top hat rail e.g. installation in terminal block, space required for 2 modular spaces, incl. standard NTC sensor, sensor connection cable length 4 m, sensor element diameter approx. 8 mm; switching contact 230 V / 10 (3) A (NO contact), 230 V / 5 (1.5) A (NC contact).  | 36x 86 x 60              |
| BT 060 AN       | 332080   | Electronic temperature controller with remote sensor, controlling range 0 °C to 60 °C, IP 65, incl. standard NTC sensor, sensor connection cable length 4 m, diameter sensor element approx. 8 mm, switching contact 230 V / 16 A (changeover contact), surface mounting, degree of protection IP65.   | 96x 169 x 56             |

phase out: BT 060 AN



ETR 060 N



BT 060 AN

## Floor temperature controller with timer



| Order reference | Ait.-Nr. | Features   | Width x Height x Depth mm |
|-----------------|----------|--|---------------------------|
| BTU 401 UN      | 355470   | Electronic floor temperature controller with digital weekly timer for underfloor heating systems in flat switch mounting frame for flush mounting; floor temperature sensor (standard NTC sensor, 4 m connection cable length, sensor element Ø 7 x 28 mm), can be installed in virtually all flat switch programs using an adapter element (50 x 50 mm according to DIN 49075) provided by the flat switch program manufacturer; switching capacity 230 V AC / 12 (2) A (NO contact); controlling range 10°C to 50°C; LC display indicating status and operating mode; temperature setting in 0.5 K increments; 3 time programs programmable (1, 2 or 3 heating period intervals); individual allocation of weekday and time program; 4 operating modes can be selected (antifreeze / lowering temperature / comfort temperature / timer program); programmable temperature range limitation; sensor monitoring; colour alpine white; IP30. | 81x 85 x 16               |
| BTU 300 AN      | 355460   | Electronic floor temperature controller with remote sensor and weekly timer, programming of heating-up and lowering times by means of graphic representation of the control elements on the display (shortest switching time 15 min.), lowering temperature can be adjusted, direct selector switches (ON/OFF, Holiday, Party, Mode, Information), automatic daylight saving (summer)/winter time setting, taking leap years into consideration, switching capacity 230 V / 13 (2) A, controlling range 10°C to 40°C, incl. standard NTC sensor, 4 m connection cable length, diameter approx. 8 mm, colour alpine white, degree of protection IP30, surface mounting.   | 110x 111 x 26             |

## Room temperature controller with floor temperature limiter



| Order reference | Ait.-Nr. | Features   | Width x Height x Depth mm |
|-----------------|----------|--|---------------------------|
| RTW 401 UN      | 355540   | Electronic room temperature controller with electronic floor temperature monitoring and floor temperature sensor (standard NTC sensor, 4 m connection cable length, sensor element Ø 7 x 28 mm), with flat switch mounting frame for flush mounting as standard, can be installed in virtually all flat switch programs using an adapter element (50 x 50 mm according to DIN 49075) provided by the flat switch program manufacturer, switching capacity 230 V AC / 10(2) A (NO contact), setting ranges: Room temperature 5°C to 30°C, floor temperature 20°C to 60°C, thermostat dial, temperature range limitation integrated in the casing cover, ON/OFF program switch, LED display for heating mode, temperature lowering by remote control (approx. 5 K), sensor monitoring, adjustable load correction, colour alpine white, IP 30, for use with edge zone supplementary heating and underfloor direct heating. Depth 16 mm when mounted in flush box.  | 81x 85 x 16               |
| RTWU 401 UN     | 355550   | Electronic room temperature controller with digital weekly timer with electronic floor temperature monitoring, floor temperature sensor (standard NTC sensor, 4 m cable length, sensor element Ø 7 x 28 mm), with flat switch mounting frame for flush mounting as standard, can be installed in virtually all flat switch programs using an adapter element (50 x 50 mm according to DIN 49075) provided by the flat switch program manufacturer, LC display indicating status and operating mode, temperature setting in 0.5 K increments, 3 time programs (1, 2 or 3 heating period intervals), individual allocation of weekday and time program, 4 operating modes can be selected (antifreeze / lowering temperature / comfort temperature / timer program), programmable temperature range limitation, sensor monitoring, switching capacity 230 V AC / 10 (2) A (NO contact), setting ranges: room temperature 5°C to 30°C, floor temperature 20°C to 60°C, sensor monitoring, adjustable load and temperature correction, colour alpine white, IP 30, for use with edge zone supplementary heating and underfloor direct heating. | 81x 85 x 45               |

## Floor temperature limiter



TB072

Capillary tube controller for temperature limiting, setting range 0°C to 60°C, switching contact 230 V / 15(8) A, using flush box (100 x 100 mm) and sensor sleeve, capillary tube length 2.4 m, degree of protection IP 20 (when mounted in flush box).

| Order reference | Ait.-Nr. | Width x Height x Depth mm |
|-----------------|----------|---------------------------|
| TB072           | 317190   | 107x 107 x 43             |

## Heating/cooling ON/OFF room temperature controller

### In flat switch mounting frame for flush mounting



RTK 601U

TPF341

| Order reference | Art.-Nr. | Features  | Width x Height x Depth mm |
|-----------------|----------|---|---------------------------|
| RTK 601U        | 355610   | Electronic room temperature controller heating/cooling; switchable between "Heating" and "Cooling" operating modes using an external change-over contact of the heat pump manager; flat switch mounting frame for flush mounting as standard; can be installed in virtually all flat switch programs using an adapter element (50 x 50 mm according to DIN 49075) provided by the flat switch program manufacturer; switch ON / antifreeze; controlling range 5 to 30°C; thermostat dial; temperature range limitation in the casing cover; operating voltage 24 V ~/50 Hz; switching capacity 24 V AC ~1 A, can control up to 5 valve actuators (24 V~ closed when de-energised), IP30 when flush-mounted, colour alpine white (similar to RAL 9010). Dew point sensor TPF 341, for interrupting cooling operation when there is risk of condensate, optional connection (dew point sensors are not included in the scope of supply).  | 82x 86 x 45               |
| RTK 602U        | 355620   | Mechanical ON/OFF room temperature controller with changeover switching contact for heating and cooling in combination with a heat pump. The "Heating" or "Cooling" switching response can be chosen via a switch. When the heat pump is in cooling mode, the room temperature controller must be manually set to cooling operation. Heating or cooling operation is based on the setting of the heat pump manager. Flat switch mounting frame for flush mounting as standard; can be installed in virtually all flat switch programs using an adapter element (50 x 50 mm according to DIN 49075) provided by the flat switch program manufacturer (not included in the scope of supply); controlling range 5–30°C; thermostat dial; temperature range limitation in the casing cover; switching capacity 230 V AC / 5 (2) A; connection of up to 5 actuators possible, IP30 when flush-mounted, colour alpine white (similar to RAL 9010). Dimensions in mm (W x H x D) 81 x 85 x 28.5 (height 16 mm mounted in flush box). Connection of a dew point sensor to interrupt the cooling operation where there is risk of condensation is not possible. This must be done using a higher-level regulation system (e.g. RKS WPM). | 81x 85 x 16               |
| TPF341          | 350980   | Flexible OCB, which sends a signal to the room temperature controller (RTK 601U) when it comes into contact with moisture, connection cable (10 m, 2 x 0.25 mm <sup>2</sup> ).  | 38x 40                    |

Discount group complete systems

When the dew point sensor comes into contact with condensation, the cooling of a room is interrupted by the motors attached to the room temperature controller.

## Temperature sensor



F3110

F3128

FG3115

TFH821

| Order reference | Art.-Nr. | features  |
|-----------------|----------|---|
| F3110           | 329940   | Temperature sensor: Can be used as floor or external temperature sensor e.g. for AR 05DCU, connection cable 20 m, sensor sleeve (D <sub>A</sub> x H) 12 / 10 mm (flat) x 50 mm, standard NTC sensor according to DIN 44574.                                       |
| F3128           | 343140   | Standard NTC-2 compact sensor (2,43 kOhm/20°C) according to DIN 44574 for use as floor or external temperature sensor, insertion flow and return flow sensor, or hot water cylinder sensor, connection cable 6 m, sensor sleeve (D <sub>A</sub> x L) 6.2 x 32 mm. |
| FM 3114         | 327670   | Magnetic installation strap-on sensor for weather dependent and residual heat dependent control of a storage heater in connection with DC charge control and charge controller AR 05DCU, standard NTC sensor.   |
| FG3115          | 336620   | Norm NTC-2 temperature sensor (2.43 kOhm/20°C) according to DIN 44574 with weather proof casing for surface mounting, terminal connection.  |
| TFH821          | 354470   | Sensor sleeve for floor temperature sensor. Putting the sensor in the sleeve with a heat transfer compound. Sensor must be laid in the heater mat level.  |

phase out: FM 3114

## Instantaneous water heater ecotronic

Connection voltage 3/PE ~400 V, 50 Hz  
Degree of protection IP 25



DEE..03

Instantaneous water heater with electronic output adjustment, infinitely variable temperature setting via symbols using a rotary encoder. Bare wire heating system for instant DHW heating and high resistance to lime scaling. Reduced switch-on volume flow of 2.6 l/min, Easy replacement of old devices, flexible cold water and hot water connections, electrical connection optionally from above or below, suitable for DVGW (German Technical and Scientific Association for Gas and Water) tested plastic pipe installation, mounting under a worktop using special accessories. Colour white with grey control panel.

| Order reference | Ait.-Nr. | Rated power W | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|---------------------------|-----------|--|
| DEE1803         | 359140   | 18000         | 236x 472 x 139            | 4.1       |  |
| DEE2103         | 359150   | 21000         |                           |           |  |
| DEE2403         | 359160   | 24000         |                           |           |  |



DLE 02 RBS

## Special accessories for DLE ..02 flow heaters

| Order reference | Ait.-Nr. | for device type                          | Features   |  |
|-----------------|----------|--|--|--|
| DLE 02 AP       | 344100   | DEC..02<br>DES..02<br>DEE..02<br>DEH..02 | Mounting set for surface mounting installation / direct connection   |  |
| DLE 02 RBS      | 342210   |  | Pipe kit for mounting under a worktop  |  |
| SA1             | 324990   | DEC..02                                  | Solar fittings (pre-mixing of domestic water) for use with a water inlet temperature from 55 °C to 100 °C e.g. from a solar energy system in connection with a DEC ..02 device.<br><br>phase out: SA 1 |  |



SA1

## Compact instantaneous water heater

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 24



DZU352

Hydraulically controlled compact flow heater, pressure-resistant design for mounting under a worktop, can be used either as an open or closed device. Used e. g. for hand wash basins.

| Order reference | Ait.-Nr. | Rated power W | Features  | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|---|---------------------------|-----------|--|
| DZU352          | 343280   | 3500          | Connection cable with plug.<br>Fitted connection. | 144x 235 x 100            | 1.7       |  |
| DZU462          | 343290   | 4600          |   |                           |           |  |

## Boiling water device

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 44



ACB 215

Plastic casing, capacity of 5 litres; temperature range approx. 38°C to boiling point, cooking level, 3 handle fittings integrated in device, steam outlet integrated into the water outlet pipe, connection cable with plug approx. 0.6 m, colour white. Degree of protection IP 44 (splash water protection), protection class I.

| Order reference | Ait.-Nr. | Rated power W | Nominal volume l | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|------------------|---------------------------|-----------|--|
| ACB 215         | 348280   | 2000          | 5                | 293x 270 x 198            | 2.5       |  |

## Compact hot water cylinder for mounting under a worktop

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 24



ACK 5 U



ACK 10 1U

**Pressure-less** design, temperature setting range 35 °C to 85 °C energy-saving and antifreeze settings, connection cable and plug, water connections metal 3/8" thread, safety temperature limiter with reset function.

| Order reference | Art.-Nr. | Rated power W | Nominal volume l | Features                                      | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|------------------|---|---------------------------|-----------|--|
| ACK 5 U         | 339590   | 2000          | 5                | Open fittings included in the scope of supply | 256x 390 x 213            | 3.5       |  |
| ACK 5 UA        | 339630   |               |                  |   |                           |           |  |
| ACK 10 2U       | 361850   |               | 10               | Open fittings included in the scope of supply | 310x 466 x 265            | 4.4       |  |
| ACK 10 2UA      | 361860   |               |                  |   |                           |           |  |
| ACK 10 1U       | 351030   |               |                  | Open fittings included in the scope of supply |                           |           |  |
| ACK 10 1UA      | 351050   |               |                  |   |                           |           |  |

phase out: ACK 10 1U / ACK 10 1UA



ACK 5 O



ACK 10 2O

## Compact hot water cylinder for mounting over a worktop

Connection voltage 1/N/PE ~230 V, 50 Hz  
Degree of protection IP 24

Pressure-less design, temperature setting range 35 °C to 85 °C with energy-saving and antifreeze settings, connection cable and plug, water connections metal 1/2" thread, safety temperature limiter with reset function.

| Order reference | Art.-Nr. | Rated power W | Nominal volume l | Features                                      | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|---------------|------------------|---|---------------------------|-----------|--|
| ACK 5 O         | 339580   | 2000          | 5                | Open fittings included in the scope of supply | 256x 390 x 213            | 3.5       |  |
| ACK 5 OA        | 339620   |               |                  |   |                           |           |  |
| ACK 10 2O       | 361870   |               | 10               | Open fittings included in the scope of supply | 310x 466 x 265            | 4.4       |  |
| ACK 10 2OA      | 361880   |               |                  |   |                           |           |  |



ACH ... Z

## Universal wall-mounted cylinders

Degree of protection IP 24

Universal wall-mounted cylinders for closed or open use, infinitely variable temperature adjustment 25 °C to 85 °C, inner container made of steel with special enamelling, anti-corrosion bar (protection anode), CFC-free thermal insulation for minimal heat loss, six individual heating elements in an enamelled protection tube (can be replaced individually without emptying the device), sheet steel outer surface.

| Order reference | Art.-Nr. | Nominal volume l | Width x Height x Depth mm | Weight kg |  |
|-----------------|----------|------------------|---------------------------|-----------|--|
| ACH 51 Z        | 350620   | 50               | 500x 640 x 512            | 30        |  |
| ACH 81 Z        | 350630   | 80               | 500x 860 x 512            | 36        |  |
| ACH 101 Z       | 350640   | 100              | 500x 1005 x 512           | 41        |  |
| ACH 121 Z       | 350650   | 120              | 500x 1160 x 512           | 46        |  |
| ACH 151 Z       | 350660   | 150              | 500x 1375 x 512           | 52        |  |

## Rated power universal wall cylinders

Rated power universal wall cylinders of the ACH ... Z series for different electric connections. The respective switching versions can be found in the installation instructions.

| power rating ACH 31 Z |                |              |                |
|-----------------------|----------------|--------------|----------------|
| off peak              |                | on peak      |                |
| power rating          | voltage        | power rating | voltage        |
| 4,2                   | 3/N/PE ~ 400V  | 1,4 / 4,2    | 0,7 / 4,2      |
|                       |                |              | 3/N/PE ~ 400V  |
| 2,8 / 2,1             | 2/N/PE ~ 400 V | 1,4 / 2,1    | 0,7 / 2,1      |
|                       |                |              | 2/N/PE ~ 400 V |
| 2,1 / 1,4 / 0,7       | 1/N/PE ~ 230 V | 1,4 / 2,1    | 0,7 / 2,1      |
|                       |                |              | 1/N/PE ~ 230 V |

| power rating ACH 51 Z - ACH 151 Z |                |              |                |
|-----------------------------------|----------------|--------------|----------------|
| off peak                          |                | on peak      |                |
| power rating                      | voltage        | power rating | voltage        |
| 6,0 / 4,0                         | 3/N/PE ~ 400V  | 3,0 / 6,0    | 2,0 / 6,0      |
|                                   |                |              | 3/N/PE ~ 400V  |
| 4,0 / 3,0 / 2,0                   | 2/N/PE ~ 400 V | 2,0 / 4,0    | 1,0 / 4,0      |
|                                   |                |              | 2/N/PE ~ 400 V |
| 4,0 / 3,0 / 2,0 / 1,0             | 1/N/PE ~ 230 V | 3,0 / 4,0    | 2,0 / 4,0      |
|                                   |                |              | 1/N/PE ~ 230 V |
| 1,0 / 2,0                         |                |              |                |

## Single-circuit wall-mounted cylinder

Degree of protection IP 24



ACH ... E

Single-circuit wall-mounted cylinders for closed or open use, infinitely variable temperature adjustment from 25 °C to 85 °C, inner container made of steel with special enamelling, anti-corrosion bar (protection anode), CFC-free thermal insulation for minimal heat loss, three individual heating elements in an enamelled protection tube (can be replaced without emptying the device), sheet steel outer surface.

| Order reference | Ait.-Nr. | Nominalvolume<br>l | Width x Height x Depth<br>mm | Weight<br>kg |  |
|-----------------|----------|--------------------|------------------------------|--------------|--|
| ACH 31 E        | 350670   | 30                 | 500x 545 x 512               | 23           |  |
| ACH 51 E        | 350680   | 50                 | 500x 640 x 512               | 30           |  |
| ACH 81 E        | 350690   | 80                 | 500x 860 x 512               | 36           |  |
| ACH 101 E       | 350700   | 100                | 500x 1005 x 512              | 41           |  |
| ACH 121 E       | 350710   | 120                | 500x 1160 x 512              | 46           |  |
| ACH 151 E       | 350720   | 150                | 500x 1375 x 512              | 52           |  |



SG1

SG2

## Special accessories wall cylinders

| Order reference | Ait.-Nr. | for device type                              | Features   |  |
|-----------------|----------|--|--|--|
| SG1             | 326350   | ACH 31 E – ACH 151 E<br>ACH 31 Z – ACH 151 Z | for wall cylinders, required for closed operation, for pressure up to 4.8 bars.                        |  |
| SG2             | 326360   |  | for wall cylinders, required for closed operation, for pressure above 4.8 bars, with pressure reducer. |  |



ACS ... Z

## Floor-standing cylinders

Degree of protection IP 24

For closed use as a single-circuit or two-circuit cylinder, infinitely variable temperature adjustment to 85 °C, inner container made of steel with special enamelling, anti-corrosion bar (protection anode), CFC-free thermal insulation for minimal heat loss, sheet steel outer surface, dial thermometer, hot/cold water connection 1" thread, colour white (similar to RAL 9016).

| Order reference | Ait.-Nr. | Nominalvolume<br>l | Diameter<br>mm | Connection circula-tion | Height<br>mm | Weight<br>kg |  |
|-----------------|----------|--------------------|----------------|-------------------------|--------------|--------------|--|
| ACS 200 Z       | 339640   | 200                | 600            | 3/4                     | 1365         | 99           |  |
| ACS 300 Z       | 339650   | 300                |                |                         | 1797         | 130          |  |
| ACS 400 Z       | 339660   | 400                | 670            | 1                       | 1832         | 170          |  |

## Rated power Universal floor-mounted cylinders

Rated power floor-mounted cylinders of the ACS ... Z series for different electric connections. The respective switching versions can be found in the installation instructions.

| power rating ACS 200 Z - ACS 400 Z |                |              |               |
|------------------------------------|----------------|--------------|---------------|
| off peak                           |                | on peak      |               |
| power rating                       | voltage        | power rating | voltage       |
| 6,0                                | 3/N/PE ~ 400V  | 2,0 / 6,0    |               |
| 3,0 / 4,0                          | 2/N/PE ~ 400 V | 3,0 / 6,0    | 3/N/PE ~ 400V |
| 2,0 / 4,0                          | 1/N/PE ~ 230 V | 4,0 / 6,0    |               |
|                                    |                | 5,0 / 6,0    |               |

## Accessories for floor-standing cylinders



SVK852

| Order reference | Ait.-Nr. | for device type | Features  |  |
|-----------------|----------|-----------------|---|--|
| SVK852          | 326660   | ACS ... Z       | For the cold water connection of drinking water cylinders to the supply network according to DIN 1988; connection 1" external thread. |  |
| ACS STF         | 341910   |                 | Supporting feet, height-adjustable, contents 3 items  |  |

| Type        | Order reference | EAN code      | Page |
|-------------|-----------------|---------------|------|
| 2NC8 042 4X | 2NC80424X       | 7036088801195 | 87   |
| 2NC8 062 2F | 2NC80622F       | 7036088800648 | 87   |
| 2NC8 062 4B | 2NC80624B       | 7036088801560 | 87   |
| 2NC8 062 4F | 2NC80624F       | 7036088800426 | 87   |
| 2NC8 102 2F | 2NC81022F       | 7036088800662 | 87   |
| 2NC8 102 4B | 2NC81024B       | 7036088801584 | 87   |
| 2NC8 102 4F | 2NC81024F       | 7036088800440 | 87   |
| 2NC8 102 4S | 2NC81024S       | 7036088801379 | 87   |
| 2NC8 152 2F | 2NC81522F       | 7036088800686 | 87   |
| 2NC8 152 4F | 2NC81524F       | 7036088800464 | 87   |
| 2NC8 202 4F | 2NC82024F       | 7036088800471 | 87   |
| 2NC8 202 4S | 2NC82024S       | 7036088801409 | 87   |
| 2NC9 408    | 2NC9408         | 7036085600517 | 88   |
| 2NC9 810    | 2NC9810         | 7036088801331 | 88   |
| 2NC9 811    | 2NC9811         | 7036081100202 | 88   |
| 2NC9 812    | 2NC9812         | 7036089000016 | 88   |
| 2NC9 813    | 2NC9813         | 7036089000023 | 88   |
| 2NC9 822    | 2NC9822         | 7036088000031 | 88   |
| 2NC9 825    | 2NC9825         | 7036088000048 | 88   |
| 2NC9 839    | 2NC9839         | 7036088000116 | 88   |
| 2NC9 840    | 2NC9840         | 7036088000109 | 88   |
| 2NC9 860    | 2NC9860         | 7036088000604 | 88   |
| 2NW5 042 4F | 2NW50424F       | 7036089404012 | 88   |
| 2NW5 062 4F | 2NW50624F       | 7036089404029 | 88   |
| 2NW5 082 4F | 2NW50824F       | 7036089404036 | 88   |

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| AC 3 RN    | 348250 | 4015627348257 | 90  |
| AC 45 N    | 348230 | 4015627348233 | 90  |
| AC 6 N     | 348240 | 4015627348240 | 90  |
| ACB 215    | 348280 | 4015627348288 | 110 |
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| ACH 101 Z  | 350640 | 4015627350649 | 111 |
| ACH 121 E  | 350710 | 4015627350717 | 112 |
| ACH 121 Z  | 350650 | 4015627350656 | 111 |
| ACH 151 E  | 350720 | 4015627350724 | 112 |
| ACH 151 Z  | 350660 | 4015627350663 | 111 |
| ACH 31 E   | 350670 | 4015627350670 | 112 |
| ACH 51 E   | 350680 | 4015627350687 | 112 |
| ACH 51 Z   | 350620 | 4015627350625 | 111 |
| ACH 81 E   | 350690 | 4015627350694 | 112 |
| ACH 81 Z   | 350630 | 4015627350632 | 111 |
| ACK 10 10  | 351020 | 4015627351028 | 111 |
| ACK 10 1OA | 351040 | 4015627351042 | 111 |
| ACK 10 1U  | 351030 | 4015627351035 | 111 |
| ACK 10 1UA | 351050 | 4015627351059 | 111 |
| ACK 10 2O  | 361870 | 4015627361874 | 111 |
| ACK 10 2OA | 361880 | 4015627361881 | 111 |
| ACK 10 2U  | 361850 | 4015627361850 | 111 |
| ACK 10 2UA | 361860 | 4015627361867 | 111 |
| ACK 5 O    | 339580 | 4015627339583 | 111 |
| ACK 5 OA   | 339620 | 4015627339620 | 111 |
| ACK 5 U    | 339590 | 4015627339590 | 111 |
| ACK 5 UA   | 339630 | 4015627339637 | 111 |
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| ACS 300 Z  | 339650 | 4015627339651 | 112 |
| ACS 400 Z  | 339660 | 4015627339668 | 112 |
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| AP SVT16   | 356060 | 4015627356061 | 38  |
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| AR 05DCU 4 | 348370 | 4015627348370 | 103 |
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| AWPM 900   | 340210          | 4015627340213 | 57       |
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| BA 1900    | 354880          | 4015627354883 | 95       |
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| BK 2001 S  | 356660          | 4015627356665 | 94       |
| BKO 18     | 326480          | 4015627326484 | 79       |
| BKOi 25    | 328580          | 4015627328587 | 78       |
| BS 1201 S  | 356650          | 4015627356658 | 94       |
| BS 1801 S  | 356640          | 4015627356641 | 94       |
| BS 1801 W  | 356630          | 4015627356634 | 94       |
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| BT 401 UN  | 355450          | 4015627355453 | 107      |
| BTU 300 AN | 355460          | 4015627355460 | 108      |
| BTU 401 UN | 355470          | 4015627355477 | 108      |
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| BWP 30H    | 351960          | 4015627351967 | 59       |
| BWP 30HLW  | 351380          | 4015627351387 | 59       |
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| CAB 10W V2    | 118028  | 5011139118028 | 90         |
| CAB 15E V2    | 117991  | 5011139117991 | 90         |
| CAB 15W V2    | 118035  | 5011139118035 | 90         |
| CAB C5        | 117960  | 5011139117960 | 91         |
| CAB C6        | 117977  | 5011139117977 | 91         |
| CAB KT 10     | 348830  | 4015627348837 | 91         |
| CAB KT 15     | 348840  | 4015627348844 | 91         |
| CAB M1 V2     | 118103  | 5011139118103 | 91         |
| CFCH          | 351360  | 4015627351363 | 89         |
| CFH 120       | 351350  | 4015627351356 | 89         |
| CFH 60        | 351330  | 4015627351332 | 89         |
| CFH 90        | 351340  | 4015627351349 | 89         |
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| CTHK 631      | 336180  | 4015627336186 | 47         |
| CTHK 632      | 335910  | 4015627335912 | 47         |
| CTHK 633      | 322140  | 4015627322141 | 47         |
| CTHK 634      | 322150  | 4015627322158 | 47         |
| CTHK 635      | 322160  | 4015627322165 | 47, 50, 51 |
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| CWWSP 308 SOL | 361120  | 4015627361126 | 66         |
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| DAB 15E V2 | 118011 | 5011139118011 | 90  |
| DAB 15W V2 | 118059 | 5011139118059 | 91  |
| DAB KT 10  | 348850 | 4015627348851 | 91  |
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| DDV 32     | 348450 | 4015627348455 | 52  |
| DEE 1803   | 359140 | 4015627359147 | 110 |
| DEE 2103   | 359150 | 4015627359154 | 110 |
| DEE 2403   | 359160 | 4015627359161 | 110 |
| DFS 80     | 361840 | 4015627361843 | 44  |
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| DLE 02 RBS | 342210 | 4015627342217 | 110 |
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| DMK 600    | 340270 | 4015627340275 | 24  |
| DMK 600-1  | 356120 | 4015627356122 | 24  |
| DMK 700    | 340280 | 4015627340282 | 24  |
| DMK 700-1  | 356130 | 4015627356139 | 24  |
| DMK 800    | 340290 | 4015627340299 | 24  |
| DMK 800-1  | 356140 | 4015627356146 | 24  |
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| DRW 43NC  | 344450          | 4015627344457 | 80   |
| DRWi 20C  | 344370          | 4015627344372 | 80   |
| DRWi 30C  | 344380          | 4015627344389 | 80   |
| DRWi 40C  | 344390          | 4015627344396 | 80   |
| DRWi 50C  | 344400          | 4015627344402 | 80   |
| DRWi 60C  | 344410          | 4015627344419 | 80   |
| DRWi 70C  | 344420          | 4015627344426 | 80   |
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| DTR 350 W | 354850          | 4015627354852 | 86   |
| DTR 500 W | 360010          | 4015627360013 | 86   |
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| DXW 310   | 343000          | 4015627343009 | 85   |
| DXW 315   | 343010          | 4015627343016 | 85   |
| DXW 320   | 343020          | 4015627343023 | 85   |
| DXW 325   | 343030          | 4015627343030 | 85   |
| DXW 330   | 343040          | 4015627343047 | 85   |
| DZU 352   | 343280          | 4015627343283 | 110  |
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| EVL 20R      | 342520          | 4015627342521 | 14       |
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| EVL 20UE     | 363530          | 4015627363533 | 6        |
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| EVL 40R      | 363720          | 4015627363724 | 14       |
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| HM 225 TS Set BT  | 350840          | 4015627350847 | 98     |
| HM 225 TS Set BTU | 350900          | 4015627350908 | 97     |
| HM 300 SF 150-5   | 336280          | 4015627336285 | 98     |
| HM 300 TS 150-5   | 343810          | 4015627343818 | 97     |
| HM 300 TS Set BT  | 350850          | 4015627350854 | 98     |
| HM 300 TS Set BTU | 350910          | 4015627350915 | 97     |
| HM 31 R 100       | 320640          | 4015627320642 | 99     |
| HM 33 R 120       | 320680          | 4015627320680 | 99     |
| HM 35 R 180       | 326670          | 4015627326675 | 99     |
| HM 35 RS 180      | 326710          | 4015627326712 | 100    |
| HM 36 R 140       | 319260          | 4015627319264 | 99     |
| HM 36 R 160       | 327240          | 4015627327245 | 99     |
| HM 36 R 205       | 319420          | 4015627319424 | 99     |
| HM 36 RS 140      | 320800          | 4015627320802 | 100    |
| HM 36 RS 160      | 327290          | 4015627327290 | 100    |
| HM 36 RS 205      | 320960          | 4015627320963 | 100    |
| HM 39 RS 240      | 319510          | 4015627319516 | 100    |
| HM 410 SF 150     | 330260          | 4015627330269 | 98     |
| HM 450 SF 150-5   | 336300          | 4015627336308 | 98     |
| HM 450 TS 150-5   | 343820          | 4015627343825 | 97     |
| HM 450 TS Set BT  | 350860          | 4015627350861 | 98     |
| HM 450 TS Set BTU | 350920          | 4015627350922 | 97     |
| HM 51 R 100       | 320650          | 4015627320659 | 99     |
| HM 56 R 120       | 320690          | 4015627320697 | 99     |
| HM 57 R 180       | 326680          | 4015627326682 | 99     |
| HM 57 RS 180      | 326720          | 4015627326729 | 100    |
| HM 60 R 140       | 319270          | 4015627319271 | 99     |
| HM 60 R 160       | 327250          | 4015627327252 | 99     |
| HM 60 R 205       | 319430          | 4015627319431 | 99     |
| HM 60 RS 160      | 327300          | 4015627327306 | 100    |
| HM 60 RS 205      | 320970          | 4015627320970 | 100    |
| HM 600 TS 150-5   | 343830          | 4015627343832 | 97     |
| HM 600 TS Set BT  | 350870          | 4015627350878 | 98     |
| HM 600 TS Set BTU | 350930          | 4015627350939 | 97     |
| HM 65 RS 240      | 319520          | 4015627319523 | 100    |
| HM 750 TS 150-5   | 343840          | 4015627343849 | 97     |
| HM 750 TS Set BT  | 350880          | 4015627350885 | 98     |
| HM 750 TS Set BTU | 350940          | 4015627350946 | 97     |
| HM 900 TS 150-5   | 343850          | 4015627343856 | 97     |
| HM 900 TS Set BT  | 350890          | 4015627350892 | 98     |
| HM 900 TS Set BTU | 350950          | 4015627350953 | 97     |

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| HPK 11TE   | 353440          | 4015627353442 | 28     |
| HPK 11TEW  | 362610          | 4015627362611 | 27     |
| HPK 14TE   | 353450          | 4015627353459 | 28     |
| HPK 7TE    | 353420          | 4015627353428 | 28     |
| HPK 7TEW   | 362590          | 4015627362598 | 27     |
| HPK 9TE    | 353430          | 4015627353435 | 28     |
| HPK 9TEW   | 362600          | 4015627362604 | 27     |
| HPKH 6TE   | 356150          | 4015627356153 | 28     |
| HPKH 9TE   | 356160          | 4015627356160 | 28     |
| HPL 11AS   | 356730          | 4015627356733 | 9      |
| HPL 11MAS  | 363970          | 4015627363977 | 9      |
| HPL 11MS   | 356850          | 4015627356856 | 9      |
| HPL 11PS   | 356790          | 4015627356795 | 9      |
| HPL 11TAS  | 362690          | 4015627362697 | 9      |
| HPL 12TUW  | 362640          | 4015627362642 | 4      |
| HPL 14PMS  | 363960          | 4015627363960 | 9      |
| HPL 16AS   | 356740          | 4015627356740 | 9      |
| HPL 16MAS  | 363980          | 4015627363984 | 9      |
| HPL 16MS   | 356860          | 4015627356863 | 9      |
| HPL 16TAS  | 362700          | 4015627362703 | 9      |
| HPL 17PS   | 356800          | 4015627356801 | 9      |
| HPL 17TUW  | 362650          | 4015627362659 | 4      |
| HPL 20AS   | 356750          | 4015627356757 | 9      |
| HPL 22HS   | 356830          | 4015627356832 | 9      |
| HPL 22PS   | 356810          | 4015627356818 | 9      |
| HPL 24AS   | 356760          | 4015627356764 | 9      |
| HPL 26HS   | 356840          | 4015627356849 | 9      |
| HPL 26PS   | 356820          | 4015627356825 | 9      |
| HPL 28AS   | 356770          | 4015627356771 | 9      |
| HPL 8AS    | 356720          | 4015627356726 | 9      |
| HPL 8PMS   | 363310          | 4015627363311 | 9      |
| HPL 9PS    | 356780          | 4015627356788 | 9      |
| HPL 9TUW   | 362630          | 4015627362635 | 4      |
| HVL 25-100 | 358670          | 4015627358676 | 14     |
| HVL 25-150 | 358880          | 4015627358881 | 14     |
| HVL 25-50  | 358650          | 4015627358652 | 14     |
| HVL 25-75  | 358660          | 4015627358669 | 14     |
| HVL 32-150 | 358680          | 4015627358683 | 14     |
| HVL 32-200 | 358690          | 4015627358690 | 14     |
| HVL 32-250 | 358700          | 4015627358706 | 14     |
| HWK 332    | 362360          | 4015627362369 | 10, 50 |
| HYG 100    | 330380          | 4015627330382 | 106    |

## I

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| IHP 30 | 348540 | 4015627348547 | 89 |
| IHP 50 | 348550 | 4015627348554 | 89 |

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| K 811       | 358050    | 4015627358058 | 93  |
| K 821       | 358060    | 4015627358065 | 93  |
| KBS 12L     | 348870    | 4015627348875 | 81  |
| KEB 1525 R  | 329810    | 4015627329812 | 99  |
| KEB 1525 RS | 330270    | 4015627330276 | 100 |
| KED 1010 SF | 329850    | 4015627329850 | 98  |
| KED SF Set  | 336560    | 4015627336568 | 98  |
| KED TS Set  | 344010    | 4015627344013 | 98  |
| KES 1525 R  | 329820    | 4015627329829 | 99  |
| KES 1525 RS | 329830    | 4015627329836 | 100 |
| KLE 075     | 335380    | 4015627335387 | 83  |
| KLE 125     | 335390    | 4015627335394 | 83  |
| KLE 150     | 337960    | 4015627337961 | 83  |
| KOMP 25     | 362050    | 4015627362055 | 55  |
| KOMP 32     | 362060    | 4015627362062 | 55  |
| KOMP 40     | 362070    | 4015627362079 | 55  |
| KOMP 50     | 362080    | 4015627362086 | 55  |
| KP 515      | AKO301038 | 4011652507546 | 96  |
| KP 525      | AKO301048 | 4011652507553 | 96  |
| KPV 25      | 346590    | 4015627346598 | 52  |
| KRRV 003    | 322070    | 4015627322073 | 49  |
| KSE 100     | 335320    | 4015627335325 | 83  |
| KSE 150     | 335340    | 4015627335349 | 83  |
| KSE 200     | 335360    | 4015627335363 | 83  |

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| LA 11AS   | 339950 | 4015627339958 | 11 |
| LA 11ASR  | 342730 | 4015627342736 | 12 |
| LA 11MAS  | 363760 | 4015627363762 | 10 |
| LA 11MS   | 342420 | 4015627342422 | 11 |
| LA 11MSR  | 342690 | 4015627342699 | 11 |
| LA 11PS   | 353320 | 4015627353329 | 13 |
| LA 11TAS  | 362570 | 4015627362574 | 10 |
| LA 12TU   | 358530 | 4015627358539 | 5  |
| LA 14PMS  | 363820 | 4015627363823 | 13 |
| LA 16AS   | 339960 | 4015627339965 | 11 |
| LA 16ASR  | 340090 | 4015627340091 | 12 |
| LA 16MS   | 351270 | 4015627351271 | 11 |
| LA 16TAS  | 362580 | 4015627362581 | 10 |
| LA 17PS   | 353330 | 4015627353336 | 13 |
| LA 17TU   | 358540 | 4015627358546 | 5  |
| LA 20AS   | 339970 | 4015627339972 | 12 |
| LA 22HS   | 340120 | 4015627340121 | 13 |
| LA 22PS   | 348420 | 4015627348424 | 13 |
| LA 24AS   | 339980 | 4015627339989 | 12 |
| LA 25TU   | 358550 | 4015627358553 | 5  |
| LA 26HS   | 340130 | 4015627340138 | 13 |
| LA 26PS   | 351890 | 4015627351899 | 13 |
| LA 28AS   | 339990 | 4015627339996 | 12 |
| LA 35TUR+ | 358570 | 4015627358577 | 7  |
| LA 40TU   | 358560 | 4015627358560 | 5  |
| LA 60TU   | 362330 | 4015627362338 | 6  |
| LA 8AS    | 342230 | 4015627342231 | 10 |
| LA 8PMS   | 362350 | 4015627362352 | 13 |
| LA 9PS    | 340000 | 4015627340008 | 12 |
| LA 9TU    | 358520 | 4015627358522 | 5  |
| LAC 16TR  | 355240 | 4015627355248 | 17 |
| LAK 10M   | 354540 | 4015627354548 | 17 |
| LAK 10MR  | 354510 | 4015627354517 | 17 |
| LAS 10MT  | 352060 | 4015627352063 | 18 |
| LAS 15MT  | 352070 | 4015627352070 | 18 |
| LAS 22TT  | 352080 | 4015627352087 | 18 |
| LI 11ME   | 352760 | 4015627352766 | 21 |
| LI 11MER  | 352800 | 4015627352803 | 21 |
| LI 11TE   | 352630 | 4015627352636 | 21 |
| LI 11TEL  | 352640 | 4015627352643 | 21 |
| LI 11TER+ | 352770 | 4015627352773 | 22 |
| LI 16TE   | 352650 | 4015627352650 | 21 |
| LI 16TEL  | 352660 | 4015627352667 | 21 |
| LI 16TER+ | 352780 | 4015627352780 | 22 |
| LI 20TE   | 352670 | 4015627352674 | 22 |
| LI 20TEL  | 352680 | 4015627352681 | 22 |
| LI 24TE   | 352690 | 4015627352698 | 22 |
| LI 24TEL  | 352700 | 4015627352704 | 22 |
| LI 28TE   | 352710 | 4015627352711 | 22 |
| LI 28TEL  | 352720 | 4015627352728 | 22 |
| LI 2M     | 356330 | 4015627356337 | 59 |
| LI 40AS   | 358300 | 4015627358300 | 23 |
| LI 9TE    | 352610 | 4015627352612 | 20 |
| LI 9TEL   | 352620 | 4015627352629 | 20 |
| LIH 22TE  | 352730 | 4015627352735 | 23 |
| LIH 26TE  | 352740 | 4015627352742 | 23 |
| LIK 8ME   | 352750 | 4015627352759 | 19 |
| LIK 8MER  | 352790 | 4015627352797 | 19 |
| LIK 8TE   | 352590 | 4015627352599 | 19 |
| LIK 8TEL  | 352600 | 4015627352605 | 19 |
| LIK 14TE  | 356010 | 4015627356016 | 20 |
| LKB 500   | 339730 | 4015627339736 | 24 |
| LKB 600   | 339760 | 4015627339767 | 24 |
| LKB 700   | 339790 | 4015627339798 | 24 |
| LKB 800   | 339820 | 4015627339828 | 24 |
| LKB 900   | 358270 | 4015627358270 | 24 |
| LKK 500   | 339720 | 4015627339729 | 24 |
| LKK 600   | 339750 | 4015627339750 | 24 |
| LKK 700   | 339780 | 4015627339781 | 24 |
| LKK 800   | 339810 | 4015627339811 | 24 |
| LKK 900   | 358250 | 4015627358256 | 24 |
| LKL 500   | 339710 | 4015627339712 | 24 |

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| LKL 600       | 339740          | 4015627339743  | 24          |
| LKL 700       | 339770          | 4015627339774  | 24          |
| LKL 800       | 339800          | 4015627339804  | 24          |
| LKL 900       | 358260          | 40156273358263 | 24          |
| LR 100        | 338840          | 4015627338845  | 81          |
| LR 90         | 338850          | 4015627338852  | 81          |
| LRD 2000 plus | 338830          | 4015627338838  | 81          |
| LUH 600       | 358620          | 4015627358621  | 25          |
| LUH 700       | 358630          | 4015627358638  | 25          |
| LUH 800       | 358640          | 4015627358645  | 25          |
| LUS 11        | 337390          | 4015627337398  | 25          |
| LUS 16        | 337400          | 4015627337404  | 25          |
| LWPM 410      | 339410          | 4015627339415  | 56          |
| <b>M</b>      |                 |                |             |
| MB            | 316340          | 4015627316348  | 101         |
| MDF 145       | 358910          | 4015627358911  | 15          |
| MDF 175       | 358920          | 4015627358928  | 15          |
| MDM 145       | 358890          | 4015627358898  | 15          |
| MDM 175       | 358900          | 4015627358904  | 15          |
| MFE 16        | 341320          | 4015627341326  | 60          |
| MMB 25        | 348880          | 4015627348882  | 54          |
| MMH 25        | 348640          | 4015627348646  | 53          |
| MMH HPK       | 356930          | 4015627356931  | 9           |
| MP 115 GA     | 343940          | 4015627343948  | 82          |
| MP 115 SYA    | 343990          | 4015627343993  | 82          |
| MP 115 VAR    | 343890          | 4015627343894  | 82          |
| MP 145 GA     | 343950          | 4015627343955  | 82          |
| MP 145 SYA    | 344000          | 4015627344006  | 82          |
| MP 145 VAR    | 343900          | 4015627343900  | 82          |
| MP 35 GA      | 343910          | 4015627343917  | 82          |
| MP 35 SYA     | 343960          | 4015627343962  | 82          |
| MP 35 VAR     | 343860          | 4015627343863  | 82          |
| MP 65 GA      | 343920          | 4015627343924  | 82          |
| MP 65 SYA     | 343970          | 4015627343979  | 82          |
| MP 65 VAR     | 343870          | 4015627343870  | 82          |
| MP 85 GA      | 343930          | 4015627343931  | 82          |
| MP 85 SYA     | 343980          | 4015627343986  | 82          |
| MP 85 VAR     | 343880          | 4015627343887  | 82          |
| MS PGD        | 353810          | 4015627353817  | 57          |
| <b>N</b>      |                 |                |             |
| NHD 100       | 319620          | 4015627319622  | 98, 99, 100 |
| Norm NTC-2    | 353400          | 4015627353404  | 57          |
| NTC-10        | 353390          | 4015627353398  | 57          |
| NWPM          | 356960          | 4015627356962  | 56          |
| <b>P</b>      |                 |                |             |
| P 10 K        | 338860          | 4015627338869  | 81          |
| P 360         | 338870          | 4015627338876  | 81          |
| PKS 14        | 342460          | 4015627342460  | 28, 42      |
| PKS 14 Econ   | 362930          | 4015627362932  | 28, 42      |
| PKS 25        | 342470          | 4015627342477  | 42          |
| PKS 25 Econ   | 362940          | 4015627362949  | 42          |
| PLX 1000      | 351470          | 4015627351479  | 84          |
| PLX 1500      | 351480          | 4015627351486  | 84          |
| PLX 2000      | 351490          | 4015627351493  | 84          |
| PLX 2000 TI   | 351520          | 4015627351523  | 84          |
| PLX 2500      | 351500          | 4015627351509  | 84          |
| PLX 3000      | 351510          | 4015627351516  | 84          |
| PLX 500       | 351450          | 4015627351455  | 84          |
| PLX 750       | 351460          | 4015627351462  | 84          |
| PSP 100E      | 353360          | 4015627353367  | 31, 33, 46  |
| PSP 140E      | 353970          | 4015627353978  | 22, 46      |
| PSW 100       | 351090          | 4015627351097  | 46          |
| PSW 1000      | 361640          | 4015627361645  | 46          |
| PSW 200       | 339830          | 4015627339835  | 46          |
| PSW 500       | 339210          | 4015627339217  | 46          |
| PWD 1250      | 362890          | 4015627362895  | 51          |
| PWD 750       | 349100          | 4015627349100  | 51          |
| PWD 900       | 362860          | 4015627362864  | 51          |
| PWS 332       | 348620          | 4015627348622  | 50          |
| PWW HRG       | 356920          | 4015627356924  | 61          |

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| RAR 20-90    | 316360          | 4015627316362  | 102             |
| RBG WPM      | 339700          | 4015627339705  | 57              |
| RBS 12U      | 358830          | 4015627358836  | 7               |
| RBS 17U      | 358840          | 4015627358843  | 7               |
| RBS 25U      | 358850          | 4015627358850  | 7               |
| RBS 40U      | 358860          | 4015627358867  | 7               |
| RBS 40ZWT    | 358330          | 4015627358331  | 7               |
| RBS 60U      | 362470          | 4015627362475  | 7               |
| RBS 9U       | 358820          | 4015627358829  | 7               |
| RD 909 TS    | 352470          | 4015627352476  | 93              |
| RD 911 TS    | 352480          | 4015627352483  | 93              |
| RF 2000      | 338880          | 4015627338883  | 81              |
| RF 90        | 338890          | 4015627338890  | 81              |
| RKS WPM      | 342220          | 4015627342224  | 16, 26, 45      |
| RL 15R       | 344960          | 4015627344969  | 81              |
| RL 15RF      | 351880          | 4015627351882  | 81              |
| RL 25R       | 344970          | 4015627344976  | 81              |
| RMT 1        | 337990          | 4015627337992  | 83              |
| RMT 2        | 362920          | 4015627362925  | 83              |
| RSG 1500     | 358350          | 4015627358355  | 25              |
| RSG 500      | 340220          | 4015627340220  | 25              |
| RSG 600      | 340230          | 4015627340237  | 25              |
| RSG 700      | 340240          | 4015627340244  | 25              |
| RSG 800      | 340250          | 4015627340251  | 25              |
| RSG 900      | 358290          | 4015627358294  | 25              |
| RT 104 ST    | 348180          | 4015627348189  | 106             |
| RT 200       | 355480          | 4015627355484  | 105             |
| RT 200 U     | 355560          | 4015627355569  | 105             |
| RT 201       | 355490          | 4015627355491  | 105             |
| RT 201 U     | 355570          | 4015627355576  | 105             |
| RT 202       | 355500          | 4015627355507  | 105             |
| RT 202 U     | 355580          | 4015627355583  | 105             |
| RT 204 U     | 355590          | 4015627355590  | 105             |
| RT 210       | 355510          | 4015627355514  | 106             |
| RT Econ A    | 363340          | 4015627363342  | 27              |
| RT Econ U    | 362660          | 4015627362666  | 27              |
| RTA 1515-2   | 319220          | 4015627319226  | 102             |
| RTA 2030     | 319210          | 4015627319219  | 102             |
| RTED 30      | 324520          | 4015627324527  | 78, 107         |
| RTEV 99      | 333990          | 4015627333994  | 78, 107         |
| RTI 402      | 338810          | 4015627338814  | 106             |
| RTID 31      | 324530          | 4015627324534  | 78, 107         |
| RTK 601U     | 355610          | 4015627355613  | 16, 26, 45, 109 |
| RTK 602U     | 355620          | 4015627355620  | 109             |
| RTS 207      | 355520          | 4015627355521  | 105             |
| RTU 200 AT   | 355600          | 4015627355606  | 106             |
| RTU 400 U    | 355530          | 4015627355538  | 106             |
| RTW 401 UN   | 355540          | 4015627355545  | 108             |
| RTWU 401 UN  | 355550          | 4015627355552  | 108             |
| RW 120/1     | AKO101945       | 4011652500202  | 95              |
| RWT 500      | 339840          | 4015627339842  | 47              |
| RWT 750      | 351640          | 4015627351646  | 51              |
| RX PW 1      | RXPW1           | 50111390206680 | 58, 84          |
| RX TI 24     | RXTI24          | 5011139020673  | 58, 84          |
| RX TI RB     | RXTIRB          | 5011139020703  | 58, 84          |
| RZ 20        | 315670          | 4015627315679  | 78              |
| <b>S</b>     |                 |                |                 |
| SA 1         | 324990          | 4015627324992  | 110             |
| SAS 100      | 340320          | 4015627340329  | 25              |
| SAS 110      | 340330          | 4015627340336  | 25              |
| SCHT 975-1   | 322250          | 4015627322257  | 15              |
| SCHT 975-3   | 322260          | 4015627322264  | 15              |
| SCHT 975-4   | 330540          | 4015627330542  | 15              |
| SE 30T       | 362480          | 4015627362482  | 61              |
| SE 40T       | 362490          | 4015627362499  | 61              |
| SE 50T       | 362500          | 4015627362505  | 61              |
| SE 60T       | 362510          | 4015627362512  | 61              |
| SF R 122510  | 359610          | 4015627359611  | 60              |
| SF R 162510  | 359620          | 4015627359628  | 60              |
| SF SD 165015 | 360780          | 4015627360785  | 60              |
| SG 1         | 326350          | 4015627326354  | 112             |

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| SG 2         | 326360          | 4015627326361 | 112    |
| SH 300 T     | AKO151146       | 4011652507621 | 96     |
| SH 301 TLS   | AKO151151       | 4011652507638 | 96     |
| SH 302 TLU   | AKO151156       | 4011652507645 | 96     |
| SI 100TE     | 352950          | 4015627352957 | 36     |
| SI 11ME      | 353040          | 4015627353046 | 32     |
| SI 11MER     | 353100          | 4015627353107 | 43     |
| SI 11TE      | 352880          | 4015627352889 | 32     |
| SI 130TE     | 352960          | 4015627352964 | 36     |
| SI 130TUR+   | 361770          | 4015627361775 | 44     |
| SI 14ME      | 353050          | 4015627353053 | 32     |
| SI 14TE      | 352890          | 4015627352896 | 32     |
| SI 17TE      | 352900          | 4015627352902 | 32     |
| SI 22TU      | 362340          | 4015627362345 | 34     |
| SI 24TE      | 352910          | 4015627352919 | 35     |
| SI 30TE      | 355640          | 4015627355644 | 35     |
| SI 30TER+    | 355650          | 4015627355651 | 43     |
| SI 37TE      | 352920          | 4015627352926 | 35     |
| SI 50TE      | 352930          | 4015627352933 | 36     |
| SI 5ME       | 353010          | 4015627353015 | 32     |
| SI 5MER      | 353070          | 4015627353077 | 43     |
| SI 5TE       | 352850          | 4015627352858 | 32     |
| SI 75TE      | 352940          | 4015627352940 | 36     |
| SI 75TER+    | 354480          | 4015627354487 | 43     |
| SI 7ME       | 353020          | 4015627353022 | 32     |
| SI 7MER      | 353080          | 4015627353084 | 43     |
| SI 7TE       | 352860          | 4015627352865 | 32     |
| SI 9ME       | 353030          | 4015627353039 | 32     |
| SI 9MER      | 353090          | 4015627353091 | 43     |
| SI 9TE       | 352870          | 4015627352872 | 32     |
| SIH 11ME     | 355190          | 4015627355194 | 33     |
| SIH 11TE     | 355160          | 4015627355163 | 33     |
| SIH 20TE     | 352970          | 4015627352971 | 36     |
| SIH 40TE     | 352980          | 4015627352988 | 36     |
| SIH 6ME      | 355170          | 4015627355170 | 33     |
| SIH 6TE      | 355140          | 4015627355149 | 33     |
| SIH 9ME      | 355180          | 4015627355187 | 33     |
| SIH 9TE      | 355150          | 4015627355156 | 33     |
| SIK 11ME     | 352990          | 4015627352995 | 30     |
| SIK 11TE     | 352830          | 4015627352834 | 30     |
| SIK 14TE     | 352840          | 4015627352841 | 30     |
| SIK 16ME     | 353000          | 4015627353008 | 30     |
| SIK 7TE      | 352810          | 4015627352810 | 30     |
| SIK 9TE      | 352820          | 4015627352827 | 30     |
| SIKH 6TE     | 356070          | 4015627356078 | 30     |
| SIKH 9TE     | 356080          | 4015627356085 | 30     |
| SMF 25       | 362130          | 4015627362130 | 15     |
| SMF 25       | 362130          | 4015627362130 | 55     |
| SMF 32       | 362140          | 4015627362147 | 15, 55 |
| SMF 40       | 362150          | 4015627362154 | 55     |
| SMF 50       | 362160          | 4015627362161 | 55     |
| SMF 65       | 362170          | 4015627362178 | 55     |
| SMS          | 314520          | 4015627314528 | 101    |
| SMSF         | 332090          | 4015627332096 | 101    |
| SOLAS 1      | 356290          | 4015627356290 | 65     |
| SOLC 180     | 360510          | 4015627360518 | 64     |
| SOLC 180 BAE | 360580          | 4015627360587 | 64     |
| SOLC 180 BAG | 360570          | 4015627360570 | 64     |
| SOLC 180 FAE | 360620          | 4015627360624 | 64     |
| SOLC 180 FAG | 360610          | 4015627360617 | 64     |
| SOLC 180 PAE | 360560          | 4015627360563 | 64     |
| SOLC 180 PAG | 360550          | 4015627360556 | 64     |
| SOLC 180 WAE | 360600          | 4015627360600 | 64     |
| SOLC 180 WAG | 360590          | 4015627360594 | 64     |
| SOLC 220     | 360520          | 4015627360525 | 64     |
| SOLC 220 BAE | 360660          | 4015627360662 | 65     |
| SOLC 220 BAG | 360650          | 4015627360655 | 65     |
| SOLC 220 FAE | 360700          | 4015627360709 | 65     |
| SOLC 220 FAG | 360690          | 4015627360693 | 65     |
| SOLC 220 PAE | 360640          | 4015627360648 | 65     |
| SOLC 220 PAG | 360630          | 4015627360631 | 65     |
| SOLC 220 WAE | 360680          | 4015627360686 | 65     |
| SOLC 220 WAG | 360670          | 4015627360679 | 65     |

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| SOLEV 12    | 356240          | 4015627356245 | 65              |
| SOLEV 18    | 356250          | 4015627356252 | 65              |
| SOLEV 24    | 356980          | 4015627356986 | 65              |
| SOLEV 35    | 356990          | 4015627356993 | 65              |
| SOLEV 50    | 357000          | 4015627357006 | 65              |
| SOLEV 80    | 361970          | 4015627361973 | 65              |
| SOLFH 15    | 356320          | 4015627356320 | 65              |
| SOLH TTK    | 356270          | 4015627356276 | 65              |
| SOLHT 20    | 356260          | 4015627356269 | 65              |
| SOLP 2 WWBA | 361160          | 4015627361164 | 67              |
| SOLP 2 WWFA | 361180          | 4015627361188 | 67              |
| SOLP 2 WWPA | 361150          | 4015627361157 | 67              |
| SOLP 3 WWBA | 361170          | 4015627361171 | 67              |
| SOLP 3 WWFA | 361220          | 4015627361225 | 67              |
| SOLP 3 WWPA | 361190          | 4015627361195 | 67              |
| SOLP 3 WWWA | 361210          | 4015627361218 | 67              |
| SOLP 4 WWBA | 361240          | 4015627361249 | 67              |
| SOLP 4 WWFA | 361260          | 4015627361263 | 67              |
| SOLP 4 WWPA | 361230          | 4015627361232 | 67              |
| SOLP 4 WWWA | 361250          | 4015627361256 | 67              |
| SOLP 5 HUBA | 361280          | 4015627361287 | 68              |
| SOLP 5 HUFA | 361300          | 4015627361300 | 68              |
| SOLP 5 HUPA | 361270          | 4015627361270 | 68              |
| SOLP 5 HWUA | 361290          | 4015627361294 | 68              |
| SOLP 6 HUBA | 361320          | 4015627361324 | 68              |
| SOLP 6 HUFA | 361340          | 4015627361348 | 68              |
| SOLP 6 HUPA | 361310          | 4015627361317 | 68              |
| SOLP 6 HWUA | 361330          | 4015627361331 | 68              |
| SOLP 7 HUBA | 361360          | 4015627361362 | 68              |
| SOLP 7 HUFA | 361380          | 4015627361386 | 68              |
| SOLP 7 HUPA | 361350          | 4015627361355 | 68              |
| SOLP 7 HWUA | 361370          | 4015627361379 | 68              |
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| SOLP 8 HUFA | 361420          | 4015627361423 | 68              |
| SOLP 8 HUPA | 361390          | 4015627361393 | 68              |
| SOLP 8 HWUA | 361410          | 4015627361416 | 68              |
| SOLPU 1     | 356230          | 4015627356238 | 64              |
| SOLPU V     | 360540          | 4015627360549 | 64              |
| SOLVK 1     | 356280          | 4015627356283 | 65              |
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| SRX 120M    | 359090          | 5011139359094 | 58              |
| SRX 140M    | 359100          | 5011139359100 | 58              |
| SRX 180 m   | 359110          | 5011139359117 | 58              |
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| SVK 852     | 326660          | 4015627326668 | 49, 60, 112     |
| SVT 200     | 348910          | 4015627348912 | 38              |
| SVT 300     | 348920          | 4015627348929 | 38              |
| SVT 400     | 348930          | 4015627348936 | 38              |
| SWPR 200    | 359470          | 4015627359475 | 38              |
| SWPR 500    | 337500          | 4015627337503 | 38              |
| SYL 250     | 352260          | 4015627352261 | 25, 34          |
| SZB 1000    | 352290          | 4015627352292 | 37              |
| SZB 1300    | 352300          | 4015627352308 | 37              |
| SZB 220E    | 362840          | 4015627362840 | 34              |
| SZB 250     | 352490          | 4015627352490 | 37              |
| SZB 300     | 355990          | 4015627355996 | 37              |
| SZB 400     | 352500          | 4015627352506 | 37              |
| SZB 500     | 352270          | 4015627352278 | 37              |
| SZB 680     | 336680          | 4015627336681 | 34              |
| SZB 690     | 336690          | 4015627336698 | 34              |
| SZB 700     | 336700          | 4015627336704 | 34              |
| SZB 710     | 336710          | 4015627336711 | 34              |
| SZB 750     | 352280          | 4015627352285 | 37              |
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| TFH 821     | 354470          | 4015627354470 | 109             |
| THR 3       | 338900          | 4015627338906 | 81              |
| TPF 341     | 350980          | 4015627350984 | 16, 26, 45, 109 |
| TPW WPM     | 350970          | 4015627350977 | 16, 26, 45      |

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| TRFW 101 | 348710          | 4015627348714 | 85   |
| TRFW 151 | 348720          | 4015627348721 | 85   |
| TRFW 201 | 348730          | 4015627348738 | 85   |
| TUE 430  | 337430          | 4015627337435 | 15   |
| TUE 440  | 337440          | 4015627337442 | 15   |
| TWS 12   | 325850          | 4015627325852 | 80   |
| TWS 18   | 325860          | 4015627325869 | 80   |
| TWS 24   | 325870          | 4015627325876 | 80   |

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| UP 60-32      | 355970    | 4015627355972 | 52, 54 |
| UP 70-32      | 354020    | 4015627354029 | 52     |
| UP 80         | 340310    | 4015627340312 | 52, 54 |
| UPE 120-32    | 362830    | 4015627362833 | 53     |
| UPE 60        | 358870    | 4015627358874 | 53     |
| UPE 70-25     | 362790    | 4015627362796 | 53     |
| UPE 70-32     | 362800    | 4015627362802 | 53     |
| UPE 80-25     | 362810    | 4015627362819 | 53     |
| UPE 80-32     | 362820    | 4015627362826 | 53     |
| UPL 12        | 324330    | 4015627324336 | 79     |
| UPL 18        | 324340    | 4015627324343 | 79     |
| UPL 24        | 324350    | 4015627324350 | 79     |
| UPL 30        | 324360    | 4015627324367 | 79     |
| UPL 30 N      | 343190    | 4015627343191 | 79     |
| UPL 36        | 324370    | 4015627324374 | 79     |
| UPL 36 N      | 343200    | 4015627343207 | 79     |
| UPL 42        | 324380    | 4015627324381 | 79     |
| UPL 43 N      | 343210    | 4015627343214 | 79     |
| UPL 45 T      | 338680    | 4015627338685 | 79     |
| UPL 48        | 324390    | 4015627324398 | 79     |
| UPL 50 N      | 343220    | 4015627343221 | 79     |
| UPL 60 T      | 338690    | 4015627338692 | 79     |
| UPL 75 T      | 338700    | 4015627338708 | 79     |
| UPLi 20       | 328220    | 4015627328228 | 79     |
| UPLi 30       | 328230    | 4015627328235 | 79     |
| UPLi 40       | 328240    | 4015627328242 | 79     |
| UPLi 50       | 328250    | 4015627328259 | 79     |
| UPLi 60       | 328260    | 4015627328266 | 79     |
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| VFDI 20C/HFi 216   | 345020 | 4015627345027 | 70 |
| VFDI 20C/HFi 220   | 345030 | 4015627345034 | 70 |
| VFDI 20C/HFi 227 * | 345040 | 4015627345041 | 70 |
| VFDI 30C/HFi 318   | 345050 | 4015627345058 | 70 |
| VFDI 30C/HFi 324   | 345060 | 4015627345065 | 70 |
| VFDI 30C/HFi 330   | 345070 | 4015627345072 | 70 |
| VFDI 30C/HFi 340 * | 345080 | 4015627345089 | 70 |
| VFDI 40C/HFi 425   | 345090 | 4015627345096 | 70 |
| VFDI 40C/HFi 432   | 345100 | 4015627345102 | 70 |
| VFDI 40C/HFi 440   | 345110 | 4015627345119 | 70 |
| VFDI 40C/HFi 452 * | 345120 | 4015627345126 | 70 |
| VFDI 50C/HFi 540   | 345130 | 4015627345133 | 70 |
| VFDI 50C/HFi 550   | 345140 | 4015627345140 | 70 |
| VFDI 50C/HFi 564 * | 345150 | 4015627345157 | 70 |
| VFDI 60C/HFi 648   | 345160 | 4015627345164 | 70 |
| VFDI 60C/HFi 660   | 345170 | 4015627345171 | 70 |
| VFDI 60C/HFi 676 * | 345180 | 4015627345188 | 70 |
| VFDI 70C/HFi 756   | 345190 | 4015627345195 | 70 |
| VFDI 70C/HFi 770   | 345200 | 4015627345201 | 70 |
| VFDI 70C/HFi 790 * | 345210 | 4015627345218 | 70 |
| VFDI 20C/HFi 212   | 345220 | 4015627345225 | 71 |
| VFDI 20C/HFi 216   | 345230 | 4015627345232 | 71 |
| VFDI 20C/HFi 220   | 345240 | 4015627345249 | 71 |
| VFDI 20C/HFi 227 * | 345250 | 4015627345256 | 71 |
| VFDI 30C/HFi 318   | 345260 | 4015627345263 | 71 |
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| VFDI 30C/HFi 330   | 345280 | 4015627345287 | 71 |
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| VFMi 40C/HFi 432   | 345310          | 4015627345317 | 71     |
| VFMi 40C/HFi 440   | 345320          | 4015627345324 | 71     |
| VFMi 40C/HFi 452 * | 345330          | 4015627345331 | 71     |
| VFMi 50C/HFi 540   | 345340          | 4015627345348 | 71     |
| VFMi 50C/HFi 550   | 345350          | 4015627345355 | 71     |
| VFMi 50C/HFi 564 * | 345360          | 4015627345362 | 71     |
| VFMi 60C/HFi 648   | 345370          | 4015627345379 | 71     |
| VFMi 60C/HFi 660   | 345380          | 4015627345386 | 71     |
| VFMi 60C/HFi 676 * | 345390          | 4015627345393 | 71     |
| VFMi 70C/HFi 756   | 345400          | 4015627345409 | 71     |
| VFMi 70C/HFi 770   | 345410          | 4015627345416 | 71     |
| VFMi 70C/HFi 790 * | 345420          | 4015627345423 | 71     |
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| VKD 24/HK 224F     | 346320          | 4015627346321 | 74     |
| VKE 20             | 317820          | 4015627317826 | 77     |
| VMS                | 316380          | 4015627316386 | 101    |
| VNDi 30C/HNi 3024  | 346030          | 4015627346031 | 73     |
| VNDi 30C/HNi 3030  | 346040          | 4015627346048 | 73     |
| VNDi 36C/HNi 3629  | 346050          | 4015627346055 | 73     |
| VNDi 36C/HNi 3636  | 346060          | 4015627346062 | 73     |
| VNDi 43C/HNi 4334  | 346070          | 4015627346079 | 73     |
| VNDi 43C/HNi 4343  | 346080          | 4015627346086 | 73     |
| VNDi 50C/HNi 5040  | 346090          | 4015627346093 | 73     |
| VNDi 50C/HNi 5050  | 346100          | 4015627346109 | 73     |
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| VRB 10 RS          | 339680          | 4015627339682 | 100    |
| VS PKS             | 348630          | 4015627348639 | 28, 31 |
| VS PWD             | 354030          | 4015627354036 | 51     |
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| VSE 32-150         | 362540          | 4015627362543 | 55     |
| VSE 32-200         | 362550          | 4015627362550 | 55     |
| VSE 32-300         | 362560          | 4015627362567 | 55     |
| VSE 32-50          | 362520          | 4015627362529 | 55     |
| VSF 25             | 361790          | 4015627361799 | 15     |
| VSF 32             | 361800          | 4015627361805 | 15     |
| VSH BS             | 347790          | 4015627347793 | 33     |
| VSH KS             | 343110          | 4015627343115 | 31     |
| VSK 500            | 341200          | 4015627341203 | 24     |
| VSK 600            | 341210          | 4015627341210 | 24     |
| VSK 700            | 341220          | 4015627341227 | 24     |
| VSK 800            | 341230          | 4015627341234 | 24     |
| VSK 900            | 358310          | 4015627358317 | 24, 29 |
| VSW 229            | 356050          | 4015627356054 | 31     |
| VSW KS             | 343120          | 4015627343122 | 31     |
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| VTDi 75C/HTi 7575  | 346240          | 4015627346246 | 73     |
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| VWU 40             | 358610          | 4015627358614 | 8      |
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| WGM 05AC           | 348330          | 4015627348332 | 104    |
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| WI 14ME            | 353350          | 4015627353350 | 39     |
| WI 14TE            | 353130          | 4015627353138 | 39     |
| WI 18TE            | 353140          | 4015627353145 | 39     |
| WI 22TE            | 353150          | 4015627353152 | 39     |
| WI 27TE            | 353160          | 4015627353169 | 39     |
| WI 50TU            | 361650          | 4015627361652 | 39     |
| WI 9ME             | 353340          | 4015627353343 | 39     |
| WI 9TE             | 353120          | 4015627353121 | 39     |
| WKO 18             | 324470          | 4015627324473 | 79     |
| WKS SE             | 357080          | 4015627357082 | 61     |
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| WPG 32        | 356040          | 4015627356047 | 54             |      |                 |          |      |
| WPM 2006 plus | 352550          | 4015627352551 | 56             |      |                 |          |      |
| WPM Econ PK   | 360000          | 4015627360006 | 42             |      |                 |          |      |
| WPM EconPlus  | 355950          | 4015627355958 | 56             |      |                 |          |      |
| WPM PK        | 348190          | 4015627348196 | 42             |      |                 |          |      |
| WS 25 i       | 328590          | 4015627328594 | 80             |      |                 |          |      |
| WSH 12        | 362120          | 4015627362123 | 6              |      |                 |          |      |
| WSH 25        | 358970          | 4015627358973 | 6              |      |                 |          |      |
| WSH 40        | 358240          | 4015627358249 | 6              |      |                 |          |      |
| WSH 9         | 362110          | 4015627362116 | 6              |      |                 |          |      |
| WSI 110TE     | 361580          | 4015627361584 | 40             |      |                 |          |      |
| WSI 150TE     | 361590          | 4015627361591 | 40             |      |                 |          |      |
| WSI 34TER+    | 361620          | 4015627361621 | 40             |      |                 |          |      |
| WSI 36TE      | 361540          | 4015627361546 | 40             |      |                 |          |      |
| WSI 44TE      | 361550          | 4015627361553 | 40             |      |                 |          |      |
| WSI 55TE      | 361560          | 4015627361560 | 40             |      |                 |          |      |
| WSI 77TER+    | 361630          | 4015627361638 | 40             |      |                 |          |      |
| WSI 85TE      | 361570          | 4015627361577 | 40             |      |                 |          |      |
| WSIH 26TE     | 361600          | 4015627361607 | 40             |      |                 |          |      |
| WSIH 44TE     | 361610          | 4015627361614 | 40             |      |                 |          |      |
| WTE 100       | 358460          | 4015627358461 | 41             |      |                 |          |      |
| WTE 130       | 358470          | 4015627358478 | 41             |      |                 |          |      |
| WTE 20        | 358400          | 4015627358409 | 41             |      |                 |          |      |
| WTE 30        | 358410          | 4015627358416 | 41             |      |                 |          |      |
| WTE 37        | 358420          | 4015627358423 | 41             |      |                 |          |      |
| WTE 40        | 358430          | 4015627358430 | 41             |      |                 |          |      |
| WTE 50        | 358440          | 4015627358447 | 41             |      |                 |          |      |
| WTE 75        | 358450          | 4015627358454 | 41             |      |                 |          |      |
| WTT 100       | 358510          | 4015627358515 | 41             |      |                 |          |      |
| WTT 40        | 358480          | 4015627358485 | 41             |      |                 |          |      |
| WTT 50        | 358490          | 4015627358492 | 41             |      |                 |          |      |
| WTT 75        | 358500          | 4015627358508 | 41             |      |                 |          |      |
| WTU 100       | 362390          | 4015627362390 | 42             |      |                 |          |      |
| WTU 130       | 362400          | 4015627362406 | 42             |      |                 |          |      |
| WTU 50        | 362370          | 4015627362376 | 42             |      |                 |          |      |
| WTU 75        | 362380          | 4015627362383 | 42             |      |                 |          |      |
| WW 100        | AKO150611       | 4011652507003 | 93             |      |                 |          |      |
| WW 150        | AKO150615       | 4011652507010 | 93             |      |                 |          |      |
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| WWSP 332      | 346610          | 4015627346611 | 48             |      |                 |          |      |
| WWSP 432 SOL  | 361080          | 4015627361089 | 48, 66         |      |                 |          |      |
| WWSP 442E     | 353370          | 4015627353374 | 31, 35, 49     |      |                 |          |      |
| WWSP 540 SOL  | 361090          | 4015627361096 | 48, 66         |      |                 |          |      |
| WWSP 880      | 337880          | 4015627337886 | 48             |      |                 |          |      |
| WWSP 900      | 339220          | 4015627339224 | 48             |      |                 |          |      |
| WWSP TE       | 353460          | 4015627353466 | 29             |      |                 |          |      |

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| ZHi 150 E | 341980 | 4015627341982 | 78  |
| ZHi 200 E | 341990 | 4015627341999 | 78  |
| ZW 05DCU  | 348290 | 4015627348295 | 103 |
| ZWM 05AC  | 348320 | 4015627348325 | 104 |
| ZWU 25    | 348940 | 4015627348943 | 42  |
| ZWU 32    | 348950 | 4015627348950 | 42  |







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